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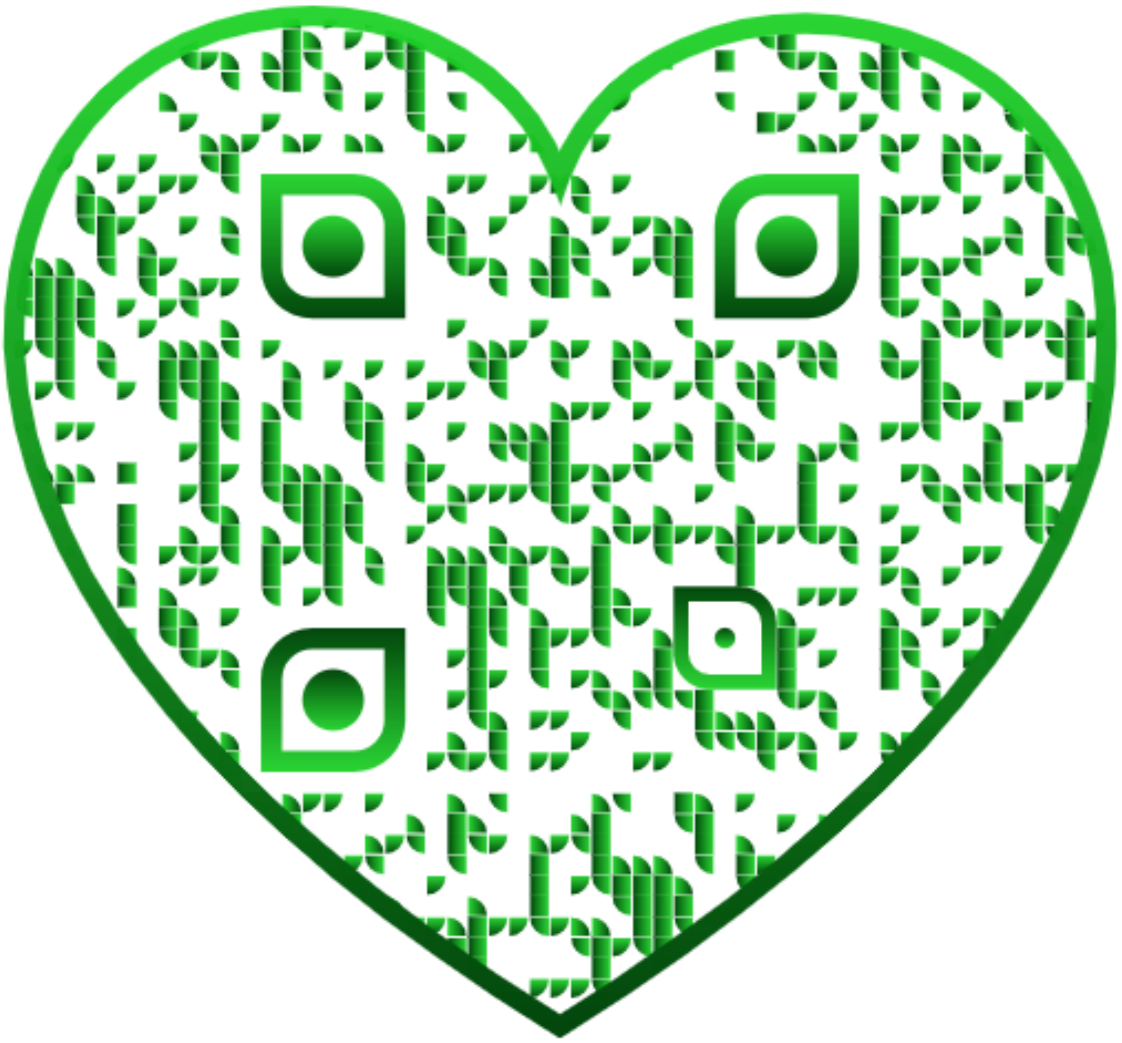

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More for less

Whether you're feeling a squeeze right now, or you're lucky enough not to have to worry about money, it's always worth checking that you're making the most of your music making setup. We're all probably guilty of picking up plugins or hardware that we don't explore to their full potential, or overlooking key features of our chosen DAW. While it's often tempting to seek fresh inspiration by picking up new gear, there are always countless ways to rethink and maximise what you already have.

That's what this issue of FM is all about. In this issue's cover feature, we're exploring cheap workarounds and free ideas to help you expand your setup, reimagine your current workflow or affordably create your dream studio.

We hope you enjoy reading the issue.

Si Truss, Editor-In-Chief
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The Bristol artist gives us an insight into how their unique sonic blend of DnB and hard techno takes shape

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Arturia add a polysynth to their hybrid 'Freak' line

Plus, a new plugin, interface and controller launched at the French brand's 'rendez-vous'

Arturia's October 'rendez-vous' event saw the French outfit unveiling four new releases, touching on both hardware and software. The highlight is the MiniFreak, a polysynth that takes the digital-meets-analogue ideas of the MicroFreak and runs with them.

Despite its name, the MiniFreak isn't exactly 'mini'; it expands on the form of the MicroFreak considerably and finds room for a 37-note slim, synth action keyboard. Just like the MicroFreak, the Mini pairs a digital oscillator section with a state-variable analogue filter and some neat modulation tools.

The upgrades don't just come down to the size of the hardware though. Whereas the MicroFreak could function as a paraphonic synth to play up to four notes, the MiniFreak boasts a full six voices of polyphony, making it a solid source of morphing digital pads and chords. In fact, the Mini has several voice modes, allowing it to be used as a monosynth, six-voice polysynth, 12-voice paraphonic synth, or in unison mode for thick, detuned tones.

The other significant addition comes in the form of a three-slot digital effect engine. Each of these slots can be assigned one of several effect types, which include reverbs, delays, modulation effects, EQ, distortions and compression. MiniFreak's outputs are stereo, meaning the digital effects can be used to add width and stereo movement to sounds.

Like the MicroFreak, the oscillator section uses a selection of 20 digital synthesis modes, including several developed by modular brand Noise Engineering, each of which can be adjusted using Wave, Timbre and Shape parameters. The MiniFreak, however, packs two oscillator 'engines', which can be blended for multi-synthesis approaches, or used in serial, so that engine 2 can apply distortion or waveshaping approaches to the output of engine 1.

The 37-note, velocity-sensitive aftertouch keyboard looks like a significant step up from the MicroFreak's capacitive control surface, and should make it much more playable. There's also expanded

sequencer/arpeggiator functionality and randomisation features.

The MiniFreak also comes with a plugin version, MiniFreak V, which uses identical sound engines, modelled filters, presets and controls, so presets and your own sounds can be shared between this and the hardware. MiniFreak is available to order now priced at $599/€599.

MiniFuse 4

Arturia have also added a new flagship interface to the MiniFuse range. The MiniFuse 4 is a 4-in/4-out interface that promises "best-in-class" audio quality, which equates to 110dB dynamic range and equivalent input noise of -129dB. MIDI I/O and a USB hub are also onboard, and there are dual headphone outputs.

As is becoming common these days, MiniFuse 4 has a virtual stereo loopback channel that enables you to record audio alongside the inputs for easy 'content' creation, while the bundled software includes Ableton Live Lite, Analog Lab Intro and Native Instruments' Guitar Rig 6 LE. It's available now in black or white, priced at $219/€219.

MiniLab 3

The company have also refreshed their MiniLab controller range, now billed as "the world's first eco-designed MIDI keyboard". Arturia claim that it's made with a minimum of 50% recycled plastic and generates less waste during production, while the packaging is said to be 100% recyclable.

In terms of specs, it's similar to its predecessor, giving you a compact 25-note keyboard, various other control features and plenty of sounds courtesy of the tightly integrated Analog Lab intro software included.

The slim keys are joined by pads, faders and knobs, plus touchstrips for pitchbend and modulation and a new OLED display. Space constraints mean there are fewer faders than on the MiniLab mkII. There's also a built-in arpeggiator, a Chord mode and custom DAW presets for Ableton Live, FL Studio, Logic Pro, Bitwig Studio and Reason.

Augmented Grand Piano

Arturia have released a third instrument in their Augmented range. Augmented Grand Piano blends samples and synth engines to create cinematic sounds suited to film scoring, video game soundtracks and library music production. The samples are taken from an '80s Steinway grand. Unusual techniques involving bowing, ping-pong balls and tape processing were used in their creation, and that's before you even get to the multi-mode synthesis layer.

It's available now as a standalone plugin, or as part of a bundle with the other Augmented instruments. FM

Ableton release Note. Is this the iOS version of Live you've been dreaming of?

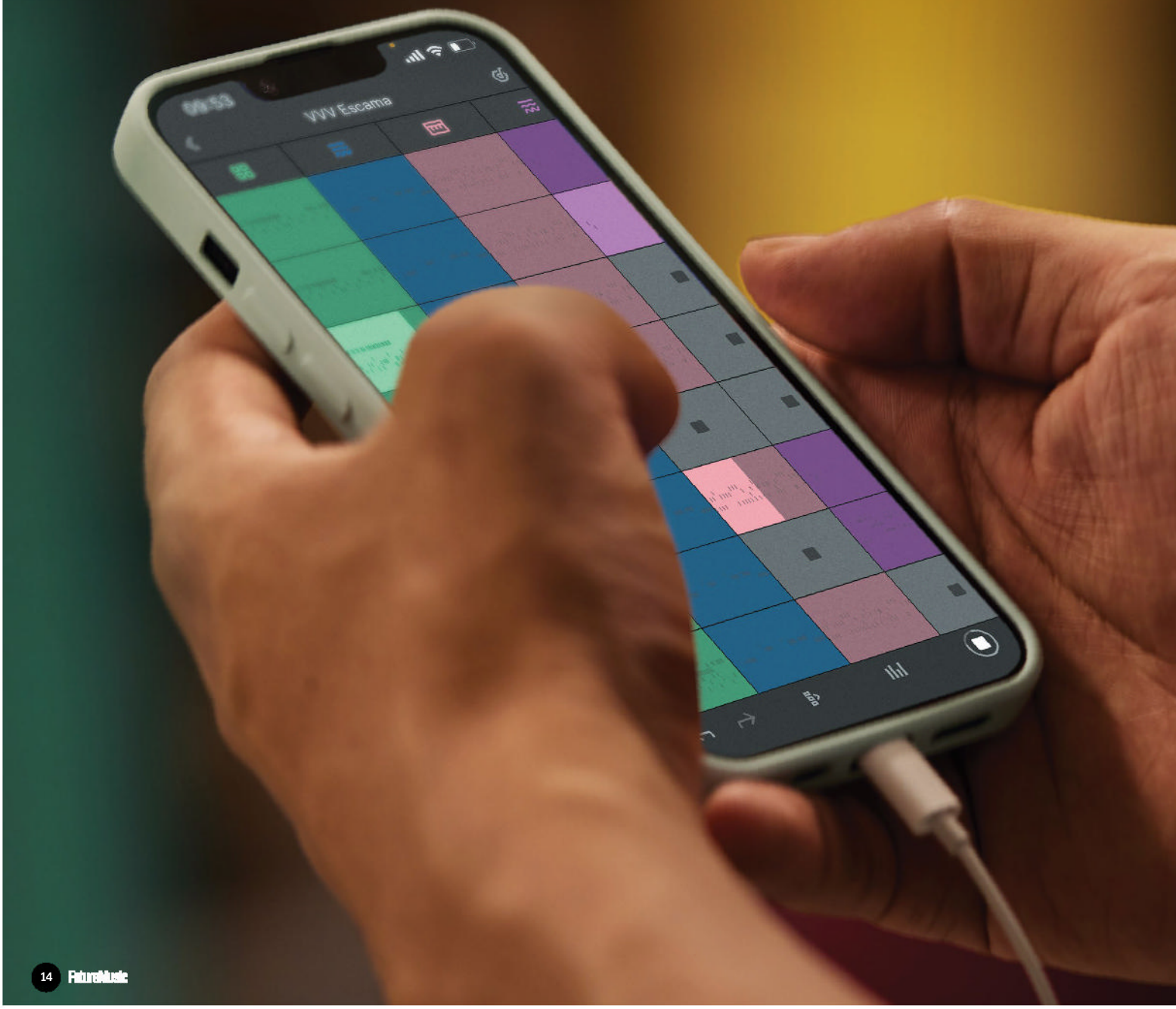
Here's everything you can and can't do with Ableton's new Note app

There have been rumours of Ableton moving into the iOS realm for a long while now. Speculation began after job ads appeared a few years ago that showed the Berlin company were looking to hire iOS devs. Given how important Ableton's Link technology has become to the music-making app world, allowing wireless sync between multiple apps, desktop machines and hardware devices, it would make sense for the company to get in on the action themselves.

Now Ableton have released their first iOS app, Note. While its arrival is sure to cause plenty of excitement, some may be disappointed to learn this isn't the full mobile version of Live they were hoping for. Instead, Note is a sketchpad app that is intentionally limited in scope compared to its DAW counterpart, but designed as a quick and simple way to generate ideas on the go.

However, while Note is significantly different to Live in both how it looks and functions, under the hood it's based on many of the same Devices and sounds DAW users will be familiar with. Crucially, this means that ideas created in Note can be exported as Live projects, and will appear in the DAW in the form of fully editable MIDI clips and Devices.

So, what exactly is Note capable of, and how does it compare to Ableton Live? Let's run through everything you can – and can't – do with Ableton Note…



CAN: JAM WITH CLIPS, SCENES AND EIGHT MIDI TRACKS

Note's workflow is based on Live's clip-launching Session View. It can host up to eight MIDI tracks, running left to right across the interface. Each track has a sound selection at the top, with eight clip slots in the column below it. As with Live's Session View, these clips can be triggered in rows as a Scene or triggered individually. Each clip can be up to eight bars long, and users can add, duplicate, move and delete clips or full Scenes. Using a button along the bottom, users can bring up a simple mixer with a level fader, mute and solo for each track.

CAN'T: CREATE COMPLEX ARRANGEMENTS

Exporting audio from Note will render a file with your eight Scenes played in order, so you can, to an extent, arrange a full track. This is as complex as the arrangement tools get, though. Unlike Live, there's no timeline-style Arrangement View for more advanced composition. There are also no Follow Actions, as in Live, for automatically triggering or looping clips.

CAN: CREATE WITH SOME OF LIVE'S STAPLE INSTRUMENTS

Note's tracks make use of a range of preset instruments that are based on Live Devices. Sounds come in three forms: drum kits, synth presets and sampled instruments. These use versions of Live's Drum Racks, Wavetable and Simpler Devices, respectively – and when exported to Live, your project will open up with the full versions of these Devices.

Each preset comes equipped with two send effects, which are also based on Devices in Live, such as Delay, Reverb and Saturator. All instruments and effects are equipped with eight macro controls for editing key sound-shaping parameters, the assignment of which changes depending on the preset being used.

CAN'T: WORK WITH AUDIO

Probably the most significant omission from Note at version 1 is the incorporation of any kind of audio tracks. That means users can't import or record audio clips. However…

CAN: SAMPLE

Note can sample, either into any of the pad slots in its drum kits or into a standalone sampler instrument. This can be done using either the device's own mic or by plugging a compatible mic/input into the Lightning/USB-C connector. When sampling, Note automatically crops the start point to the first transient. Users can also import samples from their desktop machine. You can AirDrop sounds from a Mac, but PC users will need to manually transfer sounds to the Files folder on their device.

CAN'T: IMPORT/SAVE PRESETS

Note contains a healthy crop of preset instruments and drum kits. These can be edited using their macro parameters, and drum samples can be mixed and matched, but there's currently no way to save edited presets for use in future projects.

It's also not possible to import presets or sounds created in the desktop version of Live, meaning you can't load up your go-to Drum Rack kit or custom Wavetable patch.

CAN: FINGER DRUM AND JAM AROUND A SCALE

All pattern inputs are made using a 5x5 grid of virtual pads. Each pad either triggers individual drum parts or notes in a scale, which can be set in the app's global settings with a BPM. The recording process makes use of a workflow similar to Live's Capture system, whereby users can jam with the pads and the app will remember the last round of inputs. If the user is happy with what they've just played, they can hit Add at the bottom of the interface to add it to the clip. There's also a Note Repeat function for creating rolls and quick repeats.

CAN'T: USE A MIDI CONTROLLER

As of version one, Note features no MIDI compatibility, meaning you can't use any iOS compatible controllers. The only way to play notes and beats is to use the virtual pad grid.

CAN: NUDGE NOTES, QUANTISE AND EDIT VELOCITY

Once you've captured your patterns, Note offers basic MIDI editing to fine-tune them. You can nudge events left or right in time, or transpose them up or down to different pitches/drum pads. You can also quantise their position to a variety of different beat divisions, and delete unwanted events.

Note also has a velocity edit view, where users can adjust the velocity of selected events using a virtual slider.

CAN'T: SEQUENCE OFFLINE

While Note enables users to edit existing MIDI events, it's not currently possible to create them, so patterns always have to be 'played' in rather than drawn. This is likely to suit some users' workflows far more than others.

This becomes an annoyance when using Bluetooth headphones, which create a significant amount of latency. As a result it's quite hard to accurately capture ideas when using any form of Bluetooth listening device, and a significant amount of quantising and editing is required to get ideas down.

CAN: AUTOMATE

As well as recording events, Note also records automation for any of its instrument or effect macro controls. Simply hit play and adjust the relevant parameter. As with recording events, Note uses a Capture-style system allowing users to decide whether or not to lock down the adjustments. Clicking on any macro with automation recorded allows users to delete or mute the recording.

CAN: EXPORT PROJECTS TO LIVE

Key to Note's appeal is the ability to transfer ideas created in the app to its DAW sibling for more in-depth editing. Any project in Note can be exported for Live and opened in version 11.2 of the DAW. Mac users can simply AirDrop projects from a device to desktop for rapid transfer. All users can also make use of Ableton Cloud, though. This allows registered users to store up to five Note projects online, and access them from any device in order to transfer them from note to desktop, or different instances of the app. Ableton Cloud is free for all Note users, and only requires registration on Ableton's website.

When opened in Live, Note projects open as full DAW sessions. Instruments used in the app open as their Live counterparts with full versions of all send effects. Clips are opened as fully editable MIDI clips.

CAN'T: IMPORT PROJECTS

Ideas can be sent from Note to Live, but there's currently no way to transfer projects the other way. This is hardly surprising, given how much more complex a Live session can be than a Note one. As a wishlist for future updates though, it would be great to be able to take half-finished ideas on the go, in some form, to sketch out new melodies, riffs and variations. FM

Spectral Plugins' Spacer uses reverb and delay for "new sonic expanses"

You've got delays and you've got reverbs, but Spectral Plugins say that their new Spacer effect, "is like no delay you've ever heard, and no reverb you've ever dreamt of. All together."

This supposed marriage made in plugin heaven promises five types of "spatial experience". Or, to put it another way, it offers five reorderable modules: Reverb, Convolution, Grain Reverb, Delay and Grain Delay, plus a Utilities tab and a multi-voice Chorus.

Each module also contains a two-band EQ plus Mix and Gain controls, while Spacer's granular engine – which includes pitchshifting technology – comes courtesy of Zynaptiq. The Convolution module comes with 110 impulse responses, or you can load your own.

Options in the Utilities tab include Saturation, Presence and Air controls, and an Age effect that introduces a vintage vibe. Spacer is available now for the introductory price of $69, rising to $119 on 5 December. It runs on PC and Mac in VST/AU/AAX formats. **FM**

KRK's GoAux speakers are mobile monitors for on-the-go music makers

KRK Audio's new GoAux portable monitor speakers are, the company say, designed for "travelling audio pros on a budget".

The monitors are available in two sizes, with the GoAux 3 and GoAux 4 offering three- and four-inch speakers respectively, and featuring both 1/8-inch and RCA stereo inputs. You can connect your laptop, phone or other device to them wirelessly over Bluetooth.

The GoAux 4 also benefits from several additional features, such as a measurement mic and built-in automatic room correction technology that optimises the speakers' response to the current acoustic environment. It also trumps its smaller rival by offering USB and 1/4-inch TRS balanced stereo inputs.

Both of the GoAux 3 and GoAux 4 setups feature glass aramid woofers along with one-inch soft textile dome tweeters in a bi-amplified two-way design. There are also rear-ported ABS cabinets that are designed to deliver better bass extension.

Tonal tweaks can be made using the LF and HF EQ controls, and when you need to work privately, you can plug a pair of headphones into the 1/8-inch stereo output, which will mute the speakers in the process.

The KRK Audio GoAux 3 and GoAux 4 are supplied as sets and come priced at $349 and $419 respectively. Each pair of speakers comes with adjustable isolating stands, a carrying bag and extra cables included. **FM**

Teenage Engineering's TX-6 field mixer now has live beat tracking for incoming audio

Whether Teenage Engineering's TX-6 mini mixer is worth its $1,200 asking price is open to debate, but TE have just thrown a bit more potential value into the device with the addition of live beat tracking for any incoming audio. This means that the TX-6 can now act as a sync box. Having 'listened' to the incoming audio, it can generate a click track based on it, and send sync out over MIDI and Bluetooth. And this all happens in real time.

Svante, one of the Teenage Engineering devs, says: "Live, real-time beat tracking is challenging, because the algorithm has to anticipate the beats before they happen. On the one hand, it should react to tempo changes swiftly. On the other hand, it shouldn't get thrown off by spurious variations in timing (what non-scientists call 'groove'). We have spent a lot of effort on finding the right balance between these two opposites: reactivity and stability."

The live input tracking is part of the v1.2.5 TX-6 firmware update, which also adds improved tap tempo and BPM adjustment. TX-6 owners can grab it from the downloads page of the Teenage Engineering website. **FM**

Akai release the MPK Mini Plus

Akai have upsized their MPK Mini MIDI keyboard and released a Plus version. This comes with an extended three-octave keyboard, a built-in sequencer, MIDI and CV/Gate connectivity, proper pitch and mod wheels, MPC pads, knobs, transport controls and more. That's a pretty comprehensive spec list, and puts the MPK Mini Plus in direct competition with Arturia's KeyStep 37 controller.

The 37 slim keys use Akai's second-generation dynamic bed, while the polyphonic two-track sequencer – designed for creating melodic and drum patterns – comes with Step and Live modes. There are eight notes of polyphony per key step, 16 notes per drum step and an onboard arpeggiator.

As well as being useful for drum playing and programming, the pads can also be used for making program changes and triggering additional CC parameters. The eight 360-degree rotary knobs are assignable, too.

The MPK Mini Plus offers Chord and Scale modes – used for triggering chords with a single key and locking the keyboard to a selected scale. Both modes feature plenty of options and there are 15 scale settings. The transport controls cover the obvious bases, and the joystick enables you to assign four parameters to the X/Y axis and morph between them. There are three CV/Gate outputs (pitch, gate and mod) and CV Clock I/O, along with USB and full-size MIDI I/O ports. You can also plug in a sustain pedal. The MPK Mini Plus is available now priced at $169. FM

The Moogerfoogers are back in plugin form

The demise of Moog's Moogerfooger range of effect pedals in 2018 was a sad moment for many people who'd come to love this collection of high-quality analogue stompboxes. Now it's back, but this time in the form of a bundle of seven plugins.

Bob Moog introduced the Moogerfooger brand in 1998, kicking things off with the MF-01 low-pass filter and MF-102 ring modulator, both of which were inspired by his synth module designs. The MF-103 phaser was released the following year, and four further products followed.

All seven Moogerfoogers have now been emulated for the DAW generation, with each plugin being based on the original analogue circuits. The effects now operate in stereo and have expanded feature sets; all parameters can be automated and you can create, save and load presets.

The hardware Moogerfoogers all featured CV inputs and outputs, meaning that they could be connected together to produce interrelated effects. This feature is recreated in the software versions; each instance of a Moogerfooger can modulate the parameters of any other. There are digital attenuverters on every CV input, along with sidechain and DC offset capabilities.

The Moogerfoogers run on Mac and Windows in VST/AU/AAX formats, and the bundle is available now priced at $249. FM

TALKING SHOP

John Howes

The producer, developer and label head on the generative ideas behind new project Paperclip Minimiser

Electronic musician, Cong Burn label head and developer John Howes' music lives on the boundary between chaos and control. On the one hand, his work is largely produced using systems and tools of his own design: rhythms and notes are generated using Strokes, a sequencing environment he's developed, synth patches are meticulously constructed on his Nord Modular G2 and Elektron Machinedrum, while parameters are modulated using another self-built software tool, the global modulation matrix Dispatch.

But though he's rigorous in his command of the creative process, Howes tells us, it's when he begins to let go that the magic happens, through generative music-making and semi-autonomous agents that possess what he's called "lo-fi AI". His latest release, a self-titled project under a new alias, derives its name from Paperclip Maximiser, a thought experiment that envisions how an AI tasked solely with manufacturing paperclips could run out of control and inadvertently kill us all in the process, were it not instilled with some form of self-correcting, machine-based ethics.

Thankfully, the AI-powered tools used to produce Howes' latest release, *Paperclip Minimiser*, haven't yet threatened us with extinction: instead, they've helped him record some of the best experimental music we've heard this year.

How did you get into music-making?

"I started making tunes on PlayStation 1 and cracked software, FL Studio on PC. When I moved to Manchester when I was 18 I got into a bit more and started buying equipment – drum machines and effects and modular stuff, and now I'm kind of in between all of it. I'm still using all these things – not so much cracked software, though *[laughs]*. But still torn between the world of drum machines, synths, hardware, and software."

When did you move into development?

"When I was at uni I made a bunch of Max for Live devices. I had one of those Eurorack converter things where you can send CV out. I didn't have a lot of money, as a student, so I was making LFOs and sequencers in Max that would output CV into my modular, basically as a way of saving money. And then I didn't touch it for five or six years.

"I worked in the music industry for five years, and I got to the stage where I was like, the next job that I get in this industry is going to be working on stuff that I don't give a shit about. Mainstream, money-making, business techno or pop music type of thing. So it was like, I guess I'm at the end of my road here. I just left the music industry completely, didn't put out a record or do any work on music for about a year, and studied coding. Then, the first job that I got in coding was for Behringer. So I kind of went straight back in."

Tell us about Strokes, the new plugin you've developed?

"I was reading a book about Jaki Liebezeit, the drummer from Can. He's an absolutely sick drummer, and he's got this really repetitive style, with really complex rhythms. I wanted to make music that sounded like that, but I didn't want to program it in MIDI clips in Live, it'd take fucking ages. So I started looking at these ways of devising rhythms and came across Euclidean rhythms. When you look at the stuff Jaki was doing, he never says the word Euclidean, but it's all there – all of it is about mathematical relationships, and the diagrams he's drawn are Euclidean rhythms, he just didn't call them that. So I started working on it mainly as a way of generating interesting drum patterns that constantly evolve.

"Before I started working on it, I used to be into Eurorack stuff, I had this big Eurorack system made of all Doepfer stuff. I used to build mini versions of Strokes on that. I made a hardware version, years and years ago, and had this whole system patched for a year, and was constantly generating stuff with it. Then I turned it into a Max thing, later on, and it's been in development for nearly four years now. It started as a small thing to generate rhythms, and it's grown into a full-on sequencing environment. Pretty much all the music that I've made in the past three or four years has started with it in some capacity."

Tell us about the new record. What's behind the decision to release under a new alias?

"It's quite different to a lot of the previous things that I've done, in terms of process. The reason that I put it under this new name is that, at the core of all the tracks on this new record, I'm into the idea of trying to put semi-artificial intelligence into the generative system. Most of the music that I make comes from complex generative systems made using Strokes, Dispatch and other bits of equipment. But in the techniques that I use on this record, the focus was on

trying to give each voice or each section of a track its own space, almost like it's an actor in a play, or something like that. Almost like *Curb Your Enthusiasm* ambient music, where everyone knows where it's going, but as soon as someone actually hits play on it, you don't know exactly what the results are gonna be.

"The idea is that all the instruments, all the voices and all the parts all listen to each other and respond to what each other are doing. But also they have to have their own intelligence in a way, they make their own decisions. That's where the name comes from. It's called *Paperclip Minimizer*. Paperclip Maximizer is this thought experiment about an AI that is given the job of making paperclips but ends up destroying the universe. So this is kind of a self-deprecating name, where it's struggling to make ambient music. *[laughs]*"

You've mentioned that you mostly used the Nord Modular G2. What is it about this synth that you found inspiring?

"Oh, man. The Nord lets you design your own drum machines, synths, effects and sequencers. It's almost like a VCV rack, but the modules haven't been updated for 15 years. With the Nord, I get the sense that they threw everything they had into it. All the best engineers were working on it, and they basically went bust trying to make it. The amount of engineering expertise that went into this machine make it one of the best machines out there. All of the oscillators, all of the tools, and everything sounds great.

"There's just enough in there that you could spend your entire life digging into these things. Now that I've got it, I kind of don't want to buy any more equipment ever again – every synth that I want, I can just try and make it on the Nord. So I've got a Lyra-8 that I made in there, and I'm gonna make a Bastl softPop tomorrow. A lot of the time a new synth'll come out with a technique in it, but rather than having to spend any money and buy it, I can try to build a close approximation on the Nord and usually end up somewhere else that I didn't expect.

"I bought it as a prototyping environment, and that's the reason why I spent two months learning it. And I still know 10% of what that machine is capable of. It's insane. I wouldn't recommend that everybody pick one up because they're really expensive and really temperamental, but yeah – holy shit, man, this machine. It's the end game now."

You've also mentioned both the Machinedrum and Monomachine…

"The Monomachine and the Machinedrum, I didn't use a ton. I didn't use any of the internal sequencers on either of them. A lot of what I was doing was building sequences on the Nord and sending that out to the Machinedrum and Monomachine. The Machinedrum, I've had a couple of them over the years, and they're amazing. It's one of those things where I get one and I'll use it for a year, get sick of the sound of it, and sell it or put it on the shelf. I'm not as interested in the new stuff, but the Monomachine, and the Machinedrum especially – it's basically a modular synth. You can do a ton of internal routing stuff.

"There are infinite things that you can potentially do. It's similar to the Nord in that it's an open box and you can do what you want with it. Simple tools that you can patch together in really crazy ways. I'm not as deep into the Monomachine, I'm not as keen on the synth engines. I don't use either that much anymore, to be honest, since I've got the Nord. I've got close approximations of all the Machinedrum and Monomachine voices that I've built myself inside the Nord. Other things are slowly getting pushed out. Maybe in ten years or so, it'll just be 10 Nord Modulars." *[laughs]* FM

> "THE FOCUS WAS ON GIVING EACH VOICE OR SECTION ITS OWN SPACE, ALMOST LIKE IT'S AN ACTOR IN A PLAY. LIKE CURB YOUR ENTHUSIASM AMBIENT MUSIC"

JOHN'S TOP TIPS

Don't listen to any music

1 **"Disengage with music, or try to listen to wildly different music while you're working on stuff. No Boomkat, no social media, no Discogs, no listening to what's going on and no going to clubs."**

Take a more disciplined approach to your work

2 **"I used to make music as a hobby, where I'd finish work for the day, turn on the machines and jam for a couple of hours. Most days I'd be tired and make something not very good and get a bit upset with myself and stop making music for a bit. Now I'll not make music for three or four months, but build up a big list of technical or conceptual ideas to try out later. I'll write them down, let them mutate into new ideas, and next time I go to make music I've got some new tasks I want to achieve."**

Be realistic

3 **"This sounds like some self-help thing, but it's not at all. If I've got three or four hours and I'm fresh, I'll work on mixing or sound design, maybe build a new patch or work on arrangement. These are gritty tasks that aren't very fun but require a lot of concentration. But if I've been at work all day, it's fine to just put some white noise into a filter and move the filter around for an hour. That's fine too. We've got to take the realistic amount of time and energy available and still make something useful out of it."**

WANT TO KNOW MORE?

Paperclip Minimiser is out now on Peak Oil. *Strokes* and *Dispatch* are available to purchase from **congburn.co.uk**

Generate new musical ideas in Ableton Live

How can I maximise my track and mix levels without distortion?

Some of the most important and most-used tools in Ableton Live are the least glamorous – yes, we're looking at you, EQ Eight and Limiter! They definitely don't produce any jazzy sound effects, but devices like these are the ones that'll make your mixes and live performances sound bigger, better, and more professional. However, the Limiter in particular can be quite mysterious. Short version; a Limiter will cap your maximum volume level, without distorting or changing the tonality of your sound. That's it! Ableton's Limiter can be used on individual tracks, grouped tracks, and master tracks; it doesn't do any harm – it's better to have them there just in case. In live performances we put them on every track in the project.

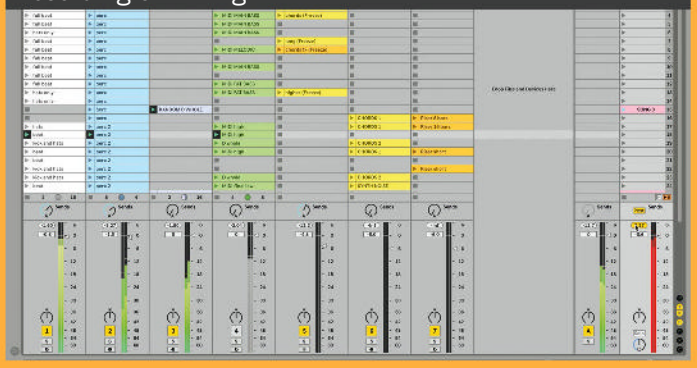
Limiter is also an important mastering tool, and sometimes that'll be all you need. It will really help average out levels as you move between songs that have been collected together for a live set, EP, or album, and it's especially useful if you're organising tracks from different sources for a compilation or DJ set.

Every version of Ableton Live, from Intro to Suite, includes Limiter, so you have no excuse for not using it!

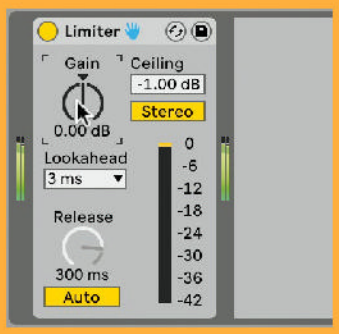
ABOUT THE AUTHOR

Martin Delaney was one of the UK's first Ableton Certified Trainers. He still teaches Live, and is currently playing bass for and producing The Witch Of Brussels. Find out more on upcoming releases and more by visiting **thewitchofbrussels.co.uk**

01

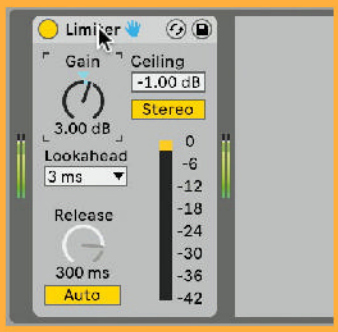
Without a Limiter, this master track's overloading. Note the red meter and the peak indicator at the top. This can create distortion, but not the kind of distortion we like – use a plugin for that! This can also happen on individual tracks; keep an eye out when recording or mixing.

02

If we add Live's Limiter audio effect device to the master track while the song is playing, we can see some activity in the gain reduction meter. We'll set an ideal maximum level, usually around -1dB, and keep checking the meter. Use the gain control to tame the input levels.



03

When there's just a little activity remaining in that meter, we should be good to go. A bit of gain reduction means we've effectively contained the extremes of your levels, while making sure the overall mix remains as loud as possible, and more likely to hold up against other mixes.



04

Limiters on group tracks come into their own on projects where you have more than one group – you can process each one separately, before they reach the master track. This is another important part of what a limiter can do – it's like a mini mastering step (same goes for compression).

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Dom & Roland **Industry**

Moving Shadow, 1998

"It's funny," begins the normally interview-shy Dominic Angas. "Until recently, I don't think I'd ever bettered that album." He's talking about his debut LP – the iconic, genre-forging masterpiece, *Industry*. A collection of super processed, forward-thinking, breakbeat science. A jewel in the legendary Moving Shadow label's crown. And a body of work that forged its own dark, techy and technical drum & bass path, as the genre was really starting to take giant steps.

Not even in his 20s then, Dom (and the Roland sampler that shared top billing with him), bunkered down and made the album he wanted to hear. "I was young and in that life-changing, tumultuous time, I was just doing it for me," he says. "I don't think I write, or wrote music for people, per se. I write because it needs to come out."

It was a dream of his to join the iconic Moving Shadow drum & bass imprint, known for pushing the creative envelope. And life on the label was good. They allowed him free rein to try what he wanted, leaving him to chop and twist drums and synths, until he had a truly unique sound to his name.

Inspired by dreamlike, high-tech sci-fi films like *Blade Runner*, he'd spend weeks dreaming up music befitting its neon-lit dystopia. "I was fascinated by these science fiction sounds I'd never heard before," he says. "And ultimately I was merging that into everything I made. I wanted to create these alien sounds in the studio that no one else had."

When released, his futuristic jungle opus of an LP would help change the scene forever – pushing it in new directions, as other artists took Dom's baton and ran off with it into the future. "I could name 101 people that have taken my ideas, and they've made great careers out of them," he says. "But, you know, it's basically what I did too. I think that's ultimately what music is. It's just someone taking something that came before and trying to make it their own."

Words by Roy Spencer

Track by track with **Dom**

Dom is still killing it on the music front. He's got a new album, *Against A Dark Background*, ready to drop on Over/Shadow (the label that has, "risen from the ashes of Moving Shadow"). Plus, several "collaboration singles" to follow, including a joint with DJ Crystl (a big hero of Dom's, growing up).

His own Dom & Roland Productions label is still going great guns, too. And his brand new imprint, Individual, has been created to release Dom's more modern take on the drum & bass sound.

"I would go to the Metalheadz Sunday nights at Blue Note in Hoxton. It was such a great place to hear new music. You'd hear something that week, and you'd go back home to the studio and try to recreate these things you'd heard. Thinking, 'How can I better that? How can I sort of do that, but you know, with my own lick?' And that was the real driving force behind the music at the time."

Thunder

"It was very inspired by [the legendary Metalheadz DnB club night at the] Blue Note. The whole 'switching up breaks' thing. I remember actually all of the breaks in that were put through a grey and very cheap distortion pedal that I bought in Maplin [*laughs*]. And, for me it was all about having a slightly different distortion sound to everyone else.

"And I also realised that the older the battery that I put in it, the better it sounded. I tried to look for drained batteries to see if I could get a different crunch out of it. Back then it was always about hunting for weird things. Eccentricities like that, to try and get something different to what everyone else is doing."

Remote View

"I was quite fascinated by the 'remote viewing program' that the CIA were doing. The idea that people were being trained to be able to see stuff with their minds. The track really doesn't say much about it, but I'd found this sample and thought, 'That's really cool!'.

"Again, I would have been processing a lot of sounds through external things. I do remember at the time I used to get speakers and put them in different places. And then get a mic, then make a sort of chain, so that I'd play something out of the speaker, and then maybe put a box around it. And then mic it up, and then the box would flap, and then I'd record that flap and then put it back in. There was a lot of really deep sort of sound processing going on here."

Connected

"Now this is one of those tracks that just came from the idea of trying to create something sort of sci-fi and dark. I just sat there and played around with something until I thought it sounded good. And then I was like, 'That sounds suitably dark and sci-fi!'. And I don't know whether I even concentrated that much on making it sound good on the dancefloor. I wanted it to be good on the dancefloor…I just more wanted this big and epic sound. I think that's all I was going for. And I think a lot of the other people at the time were just trying really hard to focus on getting the snare right and the kick right. I was interested in all of that. It just always took a bit of a back seat to me just going, 'Look at this amazingly big epic thing that I've made'."

Time

"I did that with Matt [aka the producer, Optical] and therefore I think he was much more focused on getting the mix really perfect and sounding good in the club.

"So, I think that one did actually have quite a lot of the right amount of punch to it. But, again it was quite mellow. It wasn't one of the hardest tracks on the album.

"I think at this time, me and Matt had done quite a few tracks together. We would have used the Sequential Circuits Pro One, loaded into my E-mu sampler. We used ZIP disks and swapped them back and forth. He would have probably come around with a ZIP disk of weird bloops and squelches and stuff that he'd made on his synth, and then that would have gone into my E-mu in my studio and then processed from there."

Spirit Train

"I remember sampling a Dillinja beat thinking I needed to disguise it somewhat, so he didn't know that I'd sampled him. I would have processed it. I do a lot of resampling. So, I'd process it and then that could be a layer. And then I might work on a beat for a couple of weeks just to get all these different layers going. And then eventually it would sound slightly different to the original thing.

"It was laborious, but at the same time I didn't think about it as much because back then music wasn't so throwaway as it is now.

"We'd put our heart and soul into something, and we do all of these weird processes and spend you know, sometimes a couple of months coming up with these sounds and arrangements. But, the end result was that there would be a record out, and 15,000 people to buy it. So, it would make it worthwhile to be able to put that amount of effort and that amount of creativity into the music."

Elektra

"This was on that classical music thing of having a pattern that would then repeat with another instrument. I grew up listening to classical. That was something I tried to include a lot. Obviously there's the light and dark… I'd often do dreamy intros that would lure the listener into this false sense of security, before the hard dark beats would be unleashed on them. And yeah, the contrast between loud and quiet. I was always a big believer in that adage – it's the sound between the notes that gives it the power."

"I think actually that track got picked up by the BBC for a TV show called *Merseyside Blues*, which was about the police. They looped it quite badly."

Time Frame

"I was quite pleased with the beat that I made on that. I made that from

scratch. I think there was a lot of people making beats from scratch. I mean, lots of people were taking breakbeats, but taking separate kicks and snares and hats from different breakbeats and somehow making a new breakbeat, rather than just taking a break and pitching it down. Or taking a break and replacing the snare – actually trying to make a new breakbeat out of single hits.

"So, for that particular break, it was all about the flicks of the hi-hats. They were quite chunky hats. And I think that would have been quite distorted and resampled through the desk I remember, that break."

City

"Inspired by the film, *The City of Lost Children*. It's a French movie from same guy that did *Delicatessen*. Really good movie. Very weird and sort of like an alternate reality sort of sci-fi. But, it had really beautiful music and was very beautifully scored. There was a bit in the beginning, with the bit that inspired this track's intro...

"Often I'd start with a sample and then it would be, you know, a string patch. And then it would be about augmenting that sample and turning it into my own. All samples ended up having to be sort of twisted. That was a big, big part of it. I think I made some of these bass sounds from piano samples, pitched down."

Chain On Two Sides

"There's a singer on this. I'd been working with a girl called Shanie, who I'd done a couple of remixes for. And after there were a whole load of vocals leftover from the sessions. I said, 'Can I put some of these in my tracks?'. She was like, 'Yeah, sure'. I used her to sort of make my own samples up. I mean, she might have sung something in a completely different context. But, then I just take the words out of context and rearrange them like samples. That seemed to work.

"Also, I think that was the same beat from *Spirit Train*. I was quite into that beat."

Anaesthetic

"Again, with Optical. All I remember was that we went to town on the filters on the E-mu. I think I'd literally bought it that day. And we were going through and all these morphing filters that neither of us had heard before. And you could go from one extreme to another. So, the whole tune was all about going with these sort of weird, beat filter extremes, one way to another. And then opening up into a really clean, fat full-range break. And then going back into quarters. It was sort of a journey on a rollercoaster. And that was the sort premise of the track, really."

Industry

"That was a weird one. I was just sort of let loose, and did my own thing. Obviously people are sticking to certain drum patterns, you know? You have a kick here, and you lay your kicks up together, and your snares up together… But, with *Industry* I remember thinking it sounded really good when I layered a kick on top of a snare. Yeah. Like, a drummer wouldn't play that. So I was sort of experimenting with rhythms, I suppose. Layering up kicks and snares. So, you still have the roll of the kick and hats to the snare. But, then you're marrying them up so that you treat these breakbeats more like percussion, I suppose."

Kinetic

"I think I'd sampled *Blade Runner* for this one. Definitely. I remember. And everyone had sampled *Blade Runner*, and it was just about trying to find bits that people hadn't used [*laughs*]. Whether it was stuff pitched down. Or, parts of something that someone hadn't got to yet. Yeah, so that was that. It was a fun time."

WANT TO KNOW MORE?

For all the latest Dom & Roland Productions, head to **domandroland.bandcamp.com**

In The Studio With Dom

"I did a lot of the album at the Moving Shadow [label] studios, which was David Bowie's old writing room.

"Kit-wise I had a Roland S-7600 sampler, obviously, as it's in my name [*laughs*]. Then an Atari. Sequential Circuits Pro One, loaded into an E-mu sampler. And I remember buying the very first Yamaha digital mixer – the Yamaha 01. Because I remember a lot of the moves that I did with delay and things were all live on that, with the delay and reverb on a fader.

"And back then, obviously, you'd have your arrangement done. And then you'd play it, and then you'd have your DAT player recording, and then you'd start doing little moves with the faders to throw a bit of reverb on a snare.

"The benefit of having a digital mixer at that time, when not many other people had them, was that you could actually record these things in as well. So, I suppose that was a big part of sound of that album."

LIKE IT? TRY THESE...

Ed Rush & Optical
Wormhole

Blisteringly simple and devastatingly effective barrage of beats from Ed and Matt "Optical" Quinn, who turned in production work on Dom's debut of the same year.

ADD THESE TO YOUR PLAYLIST:
'Mystery Machine', 'Millennium', 'Wormhole'

Rob Playford
98.1

Moving Shadow compilation from the label boss from the year *Industry* dropped, if you want an extra dose of that pre-millennium vibe.

ADD THESE TO YOUR PLAYLIST:
Hoax – 'Abracada', E-Z Rollers – 'Tough At The Top (Origin Unknown Remix)', DJ Teebee – 'Assassin'

Dom & Roland
Back For The Future

2002 follow-up, mixed expertly by the man himself. The blends inside take in all the future flex flavours he was pushing at the time.

ADD THESE TO YOUR PLAYLIST:
'Can't Punish Me', 'Killa Bullet', 'Wee Gee'

Talvin Singh
OK

Another standout LP from 1998, from the guy with his own legendary club night at the infamous Blue Note.

ADD THESE TO YOUR PLAYLIST:
'Traveller', 'Butterfly', 'Mombasstic'

Dom & Roland
Lost in the Moment

This storming 2020 album captures all the joy and explosive emotion of his earlier work. Check it, and remember why you fell in love with DnB.

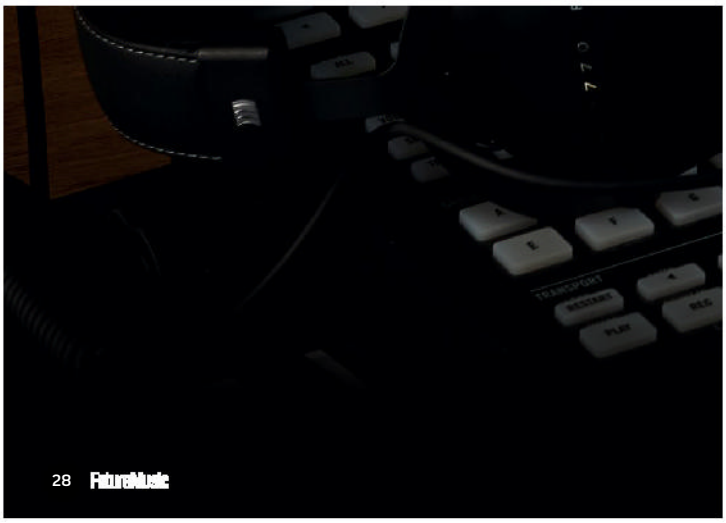
ADD THESE TO YOUR PLAYLIST:
'Sandcrawler', 'Zeppelin', 'Delta'

CREATIVE TOOLS FOR MUSIC MAKERS

BABY AUDIO.
babyaud.io

Celebrate 30 years of Novation with free classic sounds

PLUS: Enter to win a whole studio's worth of Novation instruments



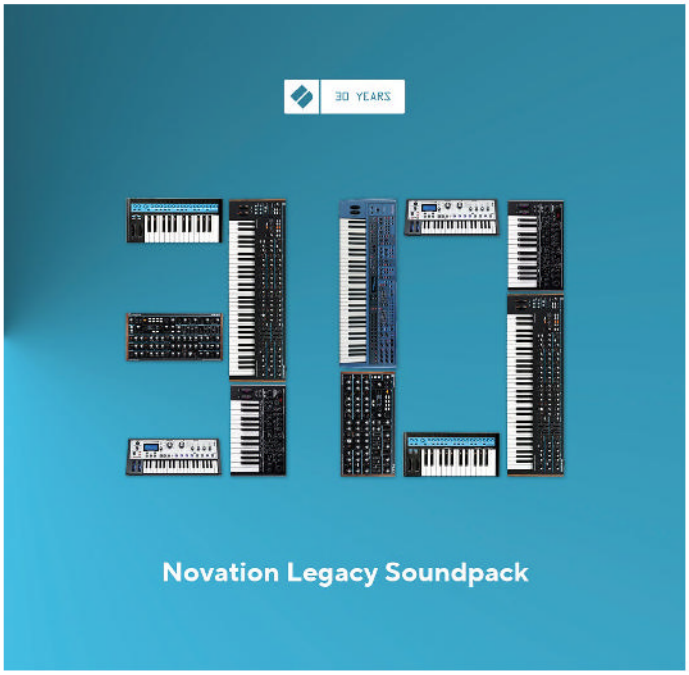
Novation first arrived on the scene in 1992 – coincidentally at almost the exact same time as issue 1 of *Future Music* – and over the past 30 years, the British brand has been responsible for some of the most memorable instruments and controllers of our lifetime.

Originally launched as Novation Electronic Music Systems, the company's debut product was the MM-10, a compact MIDI keyboard designed to control Yamaha's QY10 synth. Novation's first icon, however, arrived in 1993 in the form of the Bass Station – a wonderfully raw and meaty analogue synth capable of thick leads and killer acid basslines.

Novation synths have covered a lot of bases over the past three decades. From the shape-shifting digital tones of the Nova series to the thick, hybrid sounds of Peak and Summit, through to the brilliantly immediate on-the-go creativity of the Circuit range. Equally influential though, are Novation's Launch controllers. The original Launchpad helped to unlock the performance potential of Ableton Live's clip-launching workflow, and instigated a whole way for artists to approach live performances. In the years since, the range has grown to encompass standalone sequencers, compact controllers and pretty much everything in between.

To celebrate this landmark anniversary, Novation are bringing together their community of artists and users to celebrate the legacy of these classic instruments. Over the

course of the coming months, Novation will be taking users behind the scenes of some of their most notable users, and bringing owners of the company's gear a host of inspirational sounds through curated packs of presets and samples. And it's not only current users who can get in on the celebrations though. Get a taste of Novation's history and capture the perfect throwback sound with the Legacy Sample Pack, stuffed with samples from some of Novation's most iconic products. Add moods and textures from the Bass Station, K-Station, AFX Mode, Peak, Summit, and plenty more classic Novation instruments besides.



Grab the Novation Legacy Sample Pack for free from this issue's download page: **www.musicradar.com/how-to-future-music-390-downloads**

Novation users can also access another 30 new and exclusive sound packs by logging into their Components account at **components.novationmusic.com**

Win a studio's worth of Novation instruments

To mark their 30th anniversary, Novation are giving away one of their biggest prize bundles ever. One lucky winner will win everything Novation has to offer – plus three years of future innovations!

To be in with a chance of winning, simply show off your favourite Novation instrument and explain why you've chosen it. The winning entry will be selected by master producer and multi-instrumentalist Bad Snacks.

Here's how to enter:

1. Take a photo or record a video of you jamming with your favourite Novation product in 9:16 (Reels-style format), max 1 minute long. You will be judged on originality. So get creative with it!
2. Share on your social media (Facebook, Instagram, Twitter, TikTok or anywhere else we can see publicly!) with the #MadeWithNovation and tag @wearenovation.
3. Head to **novationmusic.com/en/win-full-music-studio-novation** to fill out the form and add a link to your competition entry.

FIND NOVATION ONLINE

novationmusic.com
IG: WeAreNovation
Twitter: WeAreNovation
FB: NovationMusic

HACK YOUR STUDIO!

Make more of your setup – for less! **Beat the squeeze with our guide** to bargains, workflow hacks and must-have freebies

Music making can be an expensive business. Even the most rudimentary software production setup requires some significant investment – a laptop, an interface, a pair of monitors or at-least some half-decent headphones. Even if you're being thrifty, those items alone aren't likely to leave you much change from a grand. If you want a suite of the latest plugins, your bill will climb higher still. Taking the hardware route is even more of a drain on your finances; drum machines, polysynths, samplers, a modular system…

We're not here to give you a guilt trip about your life choices though. Music creates happiness and what better thing is there to invest your hard-earned cash in than that? Our point, however, is that right now we're all feeling the squeeze a bit. Between inflation, rising energy bills and squeezed wages, you might find that life is unfairly eating into your synth acquisition slush fund.

Like anything in life though, in music making, money isn't the be-all-and-end-all. Having a top-of-the-line studio stuffed with expensive vintage hardware won't suddenly make someone a great producer, and countless great records have been created over the years on cheap or minimal setups. Necessity is the mother of invention, after all, and the histories of dance music and hip-hop have their roots in artists finding creative ways to work around the limitations of their resources.

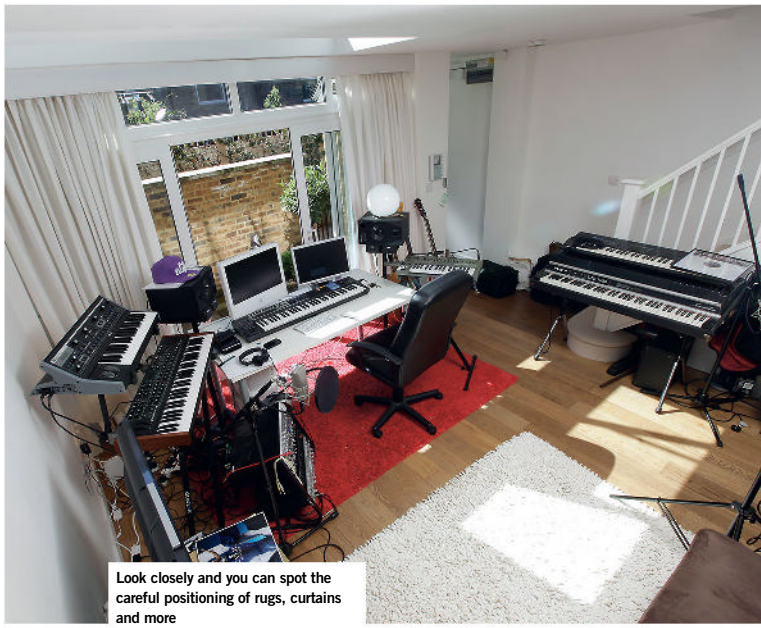
That's what this feature is all about: ways to maximise the potential of what you already have, or bulk up your music making arsenal without bankrupting yourself.

DIY STUDIO

While the heart of your setup is the hardware or software you use to make music – which we'll come to over the coming pages – the space around these things plays an equally important role in creating an inspiring and effective setup. From the desk where you work, to various studio accessories and the very shape and sound of your studio, having a properly setup space can vastly improve your quality of life.

If you have the cash, there's a ton of excellent bespoke options out there, from custom studio desks to multi-level synth stands and top-quality acoustic treatments. But there are plenty of ways to achieve similar results using more affordable, commonly available items.

IKEA has long been a go-to destination for cost-conscious music makers, and while other sources of budget furniture are very much available, what makes the Swedish giant so handy for kitting out a studio is the modular approach the company takes to its product lines.



Look closely and you can spot the careful positioning of rugs, curtains and more

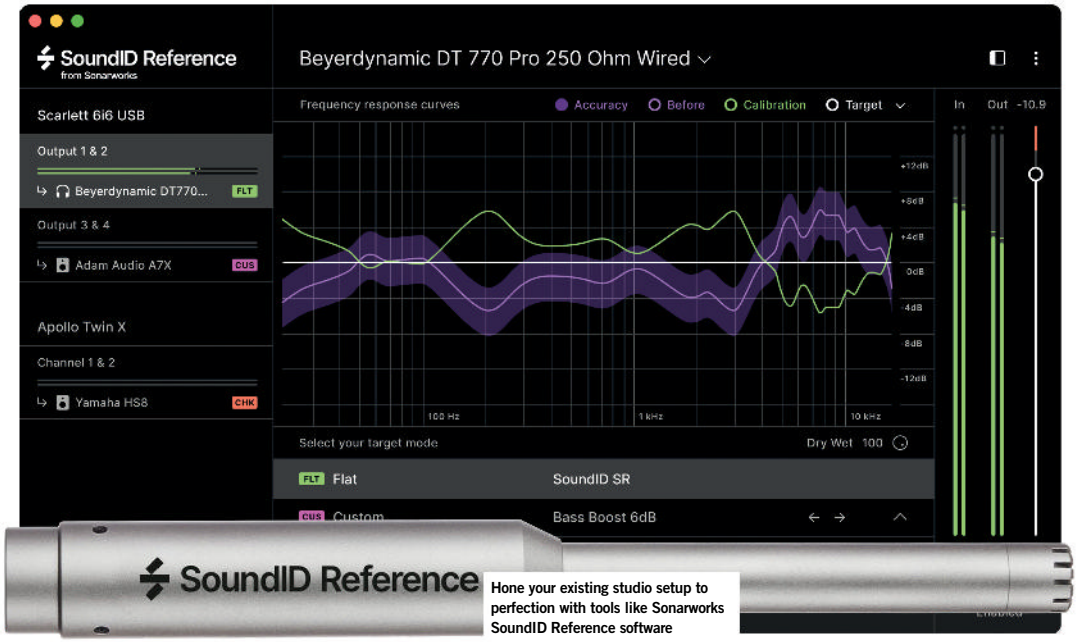
There are certain products that can be used wholesale in a studio context – many of the open clothes racks and shoe stands can be repurposed nicely as synth racks, and the Kallax series bookshelves are a classic for vinyl records. But many of the smaller accessories and elements can be equally as useful for adapting your space. Laptop stands and desktop shelves make great platforms for synth modules, effect pedals and interfaces. Hooks designed for cookware can easily be repurposed to hold leads or headphones. The basic housing for a set of draws could even be repurposed as a rack for outboard or a modular system.

> LIFE MAY BE UNFAIRLY EATING INTO YOUR SYNTH ACQUISITION SLUSH FUND

Of course, if you're happy to get hands-on with some basic woodworking, there's no end of quality ideas and instructional videos out there to help you build your own bespoke studio gear.

When it comes to making your studio sound better, there are plenty of things you can do for free to help the acoustics of your space. Carefully placing soft fabrics such as curtains, wall hangings and blankets around your room can help to absorb unwanted reflections. Similarly, objects like a good-sized bookcase placed against the wall directly opposite your speakers can help to minimise the effect of flat surfaces.

It's worth reading up on optimal monitor placement and or using software like Sonarworks SoundID reference, which can help make the most of what you already have.



Hone your existing studio setup to perfection with tools like Sonarworks SoundID Reference software

8 FREE WAYS YOU CAN WORK SMARTER IN THE STUDIO

With shopping sprees on hold, it's time to look within and maximise your current setup

A bird in the hand is worth three on eBay, so why not double back and reevaluate your existing setup

GET SORTED

1 Creativity and efficiency can be awkward bedfellows and it's true that happenstance can sometimes lead you in creative directions you hadn't envisaged. Still, being organised tends to reap benefits in the long run. In your hardware environment this could be as simple as ensuring all your equipment including cables, mics, headphones and so on are clearly labelled so that when you plug something up it's quick and predictable. In the software domain it's very easy for your system to become a fragmented web of content that can be slow to access from your DAW. It can be beneficial to organise your sessions and samples into separate folders or drives even, although be aware that moving files around can cause later problems when you try to open sessions, so proceed with caution. Within your DAW, things should be a bit more straightforward and although each piece of software has its own way of organising plugins and content, there is typically some way to create favourites lists and tag specific types of files. Either way, getting all your regularly used tools into bespoke menus can be incredibly liberating and might also help you boot out stuff you never use.

FREEBIES

2 Free hardware might not be that easy to find, but free software certainly is, and whether you're a PC or Mac user you can expand your toolset with some great free tools. You'll find some of our recent favourites over the page, but there's plenty more out there. Start by checking the websites of developers you're already registered with. You'll often find basic or development plugins, soundsets or sample packs available for free. This is less commonplace for the big developers, but pretty much standard for smaller ones, so try those first. Or simply check out our free downloads resource (see Contents). You'll find awesome sample and software freebies from us and our sibling publication, *Computer Music*.

READ THE MANUAL (RTM)

3 Most of us produce music using DAWs that are immensely powerful, and grow ever more powerful with each update. Staying on top of these developments is tricky and chances are there are loads of untapped features in your DAW you're not even aware of. Why not take a deep dive into your DAW manual and see what you've missed? Try to establish the most efficient workflow for you, checking out any features that will

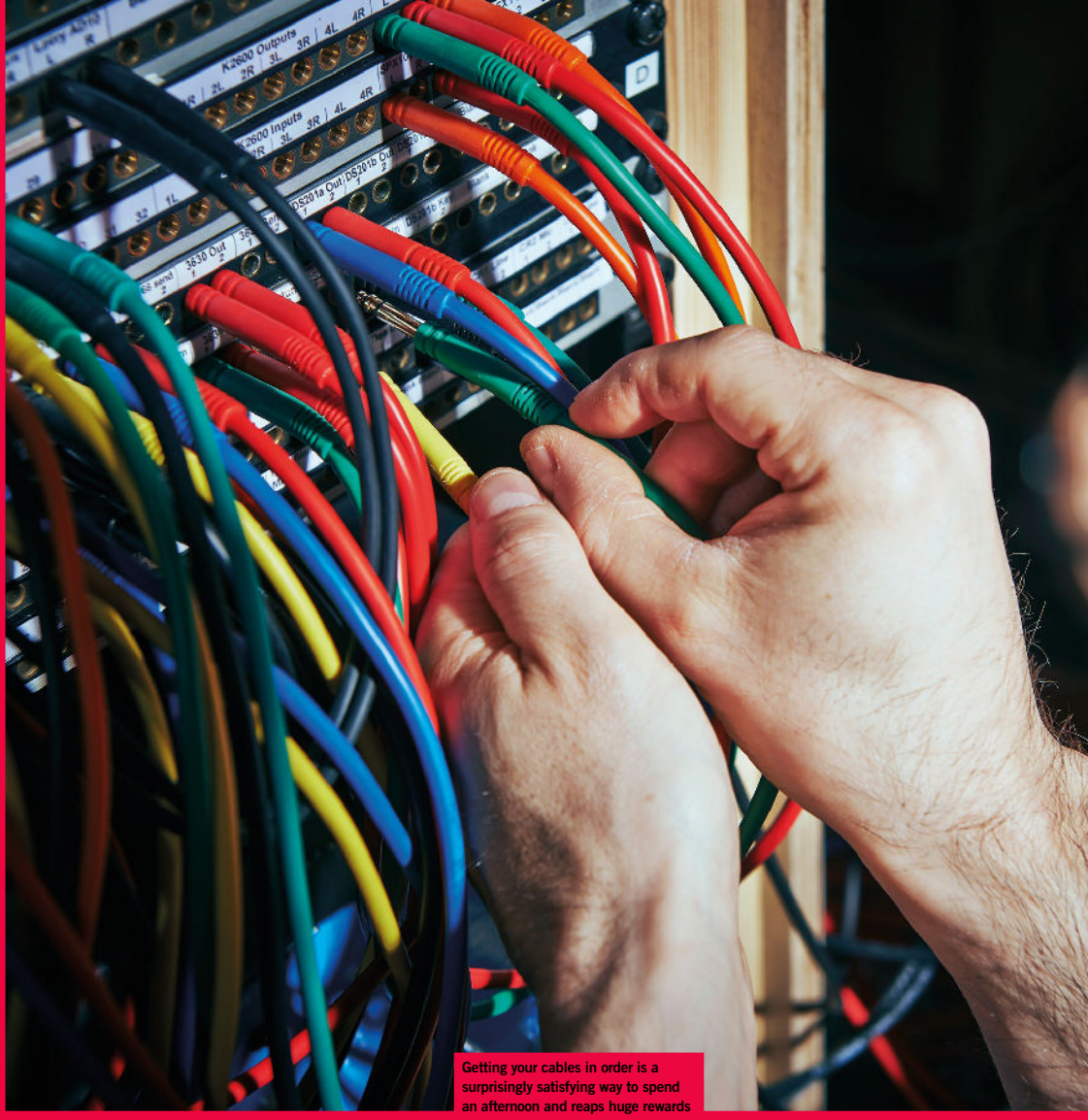
speed up regular tasks. Or grab the version history to establish recent feature additions that appeal. If this sounds a bit dull, why not seek out some online DAW-specific tutorials? Either way, we're sure you'll find labour-saving or creativity-enhancing features that will add to your creative life and won't cost you a thing.

RE-EVALUATE YOUR HARDWARE

4 We get used to focusing on the latest hardware and all it has to offer. But take time to look at what you already have and see if you can make better use of it. For example, if you have multiple inputs on your interface, why not get them all plugged up and ready for specific tasks – mic, line, instrument and so on? You can apply the same technique to spare desk channels. Meanwhile, if you have under-used outboard, why not hook that up to your interface and assign it as a hardware insert, so it's ready to roll when you need it?

ACOUSTIC TREATMENT

5 Although it's ideal to implement proper acoustic treatment, there's a lot we can do that's free. Carpet, rugs and curtains all reduce mid to high frequencies, but you can enhance this further with temporary screens around your performer. If resources are limited, focus your efforts behind the performer to control what enters the 'on axis' side of the mic.



Getting your cables in order is a surprisingly satisfying way to spend an afternoon and reaps huge rewards

TEMPLATES

6 Although each project we work on tends to be slightly different, there will usually be repeated aspects that we should be able to automate; and with any software-driven device this means we should be able to create a template. This could be as simple as a routing preset on a mixing desk or a headphone cuemix setup on an interface. Or it could be complex like a full-on session layout on your DAW. So, if the gear has the facility and you find yourself setting things up in similar ways, create a template and save yourself some time.

Full acoustic treatment – like the cheesegrater-style one shown – is pricey, but cheap alternatives abound

ROOM ANALYSIS

7 If you regularly produce and create in the same space, the room acoustic forms an important part of that process. Few of us can afford extensive acoustic treatment, but even if we have zero budget to play with we can still analyse the space itself to establish which frequencies could be problematic. And you never know, it might be possible to improve things simply by adjusting your recording, sitting or workstation position. Start with just the room measurements to get an idea of potential problem frequencies. Then if you have a decent mic to hand, why not do some proper real time analysis? For free software tools, visit **https://amcoustics.com/tools/amroc** and **https://www.roomeqwizard.com/**

> ALTHOUGH THIS MAY TAKE A BIT OF TIME TO MASTER, IT WON'T COST YOU A THING

SHORTCUTS

8 Most DAWs have icon-friendly operation that means anyone can use them without too much training. However, to become a power user you should really get to grips with keyboard shortcuts and although this may take a bit of time to master, it won't cost you a thing. Even if you only use them for regular tasks such as switching or launching windows, dropping into record, zooming in and out and so on, combining them with existing icon functions can seriously speed up your workflow.

6 GREAT DIY MODULES

Get the best sonic boom for your buck with this selection of DIY modules, which will give you some insight into the inner workings of your gear, as well as provide you with some useful modules for future patching possibilities. We've chosen a selection here that won't break the bank and that won't be too taxing for people new to soldering. They're all achievable in an evening session and come with all you need, from rear side components to face plates and knobs

1 ERICA SYNTHS EDU

Erica Synths EDU range covers many bases but we'd opt for the sequencer module. It is a simple build and once complete you'll have a driving force for pattern generation, with internal and external clocking options. It can even act as a waveshaper.

2 MUSIC THING TURING MACHINE

For a more generative option when it comes to pattern generation, melodies or basslines, Music Thing Modulars Turing Machines is an excellent option. You can't programme precise sequences but it's still a thing of joy. Among these options it's a more time-consuming build but not hard and it's well worth the time investment involved.

3 MUSIC THING MIKROPHONIE

For the less build-confident among us, the mikrophonie, also from Music Thing, is a simple build that offers up a really fun and intuitive method for triggering patches. The small, simple module allows you to tap, scratch and flick triggers. Try using a guitar pick or finger nail to scrape on the touch plate, or simply tap it to trigger an event. Easy to build and use, this is a great starting point.

4 LOOK MUM NO COMPUTER 3340 CHIP

Every rig needs a voice and the 3340 chip provides one that is a classic. One of the simplest to build is from Look Mum No Computer, which has many components already installed, making for a fast build. The module sounds great and even comes with a built-in tuner! A fantastic option for classic synth tones and one that will be up and running in no time.

5 PLUM AUDIO OCP

Plum Audio's take on Ornament and Crime is a good budget bet. It comes with surface mount components in place, for an easy build. It's at the higher price end but offers a lot of potential uses for various tasks, from sequencing to quantising, and LFOs to envelope generation.

6 4MS ROTATING CLOCK DIVIDER

Clock dividers are one of the unsung heroes of modular and the Rotating Clock Divider by 4ms is a top option. Their DIY version is a simple build and cheap too. With it you get eight different division outputs plus a handy option for mixing things up with the rotate input, that allows you to vary the division of each output.

BEST NEW FREEWARE SYNTHS

Getting new instrumental inspiration in your DAW has never been faster – or cheaper – thanks to the wealth of offerings out there. Free virtual instruments are usually a little less visually appealing than their effects counterparts, but if you're willing to look with your ears, you'll hear the same quality as is on offer with some of today's paid-for instruments. Check out this diverse range of recent free instruments to spark off a few new directions

1 SURGE XT

The open-source and free Surge synth is probably regarded as a "freeware classic" by now, although the Surge team are going strong, having created this new XT version, and having adopted a few other plugins along the way too!

2 FLUCTUS

Fluctus is a three-operator FM synth with powerful controls for a free instrument. There's saturation, filtering, delay and phaser effects, as well as 60 patches to get yourself thoroughly frequency-modulated.

3 CRUX: ELECTRIC BASSES

Crux: Electric Basses is one of Orchestral Tools' 'SINEfactory' instruments, free offerings that you get for just being signed up to the company's mailing list. There's a whole load more offerings available to boot, but Crux is one of the collection's most vital instruments.

4 VSL SYNCHRON PLAYER

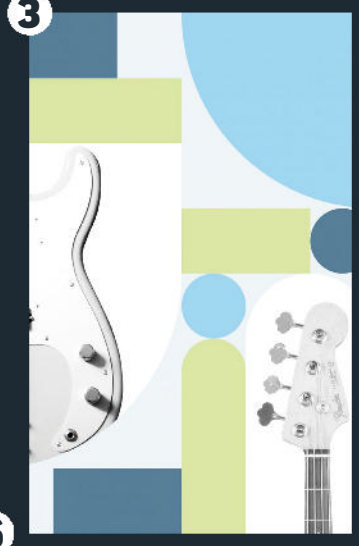
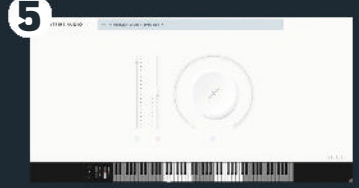
Soft Imperial is not a mint, it's VSL's free piano instrument for their Synchron Player software. The sample set models a Bösendorfer Imperial grand piano, making it one of the few high-quality pianos you can get, for nothing but your email details.

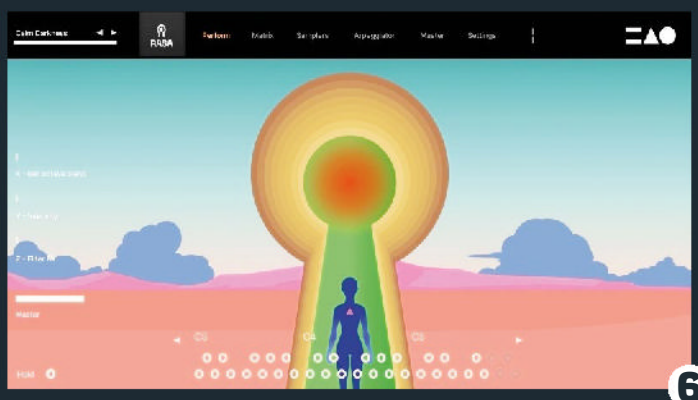
5 SPITFIRE LABS

Spitfire's Labs collections are always worth checking out for cash-strapped producers, and among this year's new entries is Vintage Drums, a parameter-scant, highly playable, set of old, well-recorded drums to inject some rhythmic vibe into a project.

6 MNTRA RASA

Mntra's free Rasa plugin is powered by the company's MNDALA 2 sampler engine giving a taste of some of their paid instruments: Orakle, Arca, Atma and UDW. The thrust of the idea is to layer and combine samples in creative ways.

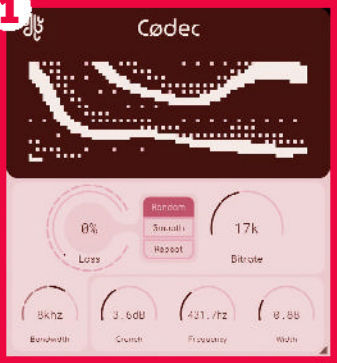




BEST NEW FREEWARE EFFECTS

Competition in the plugin marketplace is more intense than ever before, and we're all benefiting from it, thanks to the trickling down of free software compressors, EQs and delays. Check out this range of processors that can be had for nothing more than perhaps offering up your email address...

1



LESE AUDIO CODEC

1 Lese Audio's Codec plugin brings the sound of data compression to your audio as a creative effect. There's a Bitrate control to help you reduce the general quality of the sound, as well as a Loss control for simulating packet drops and, optionally, their subsequent reconstruction.

2

AUDIOMODERN PANFLOW

2 Audiomodern Panflow lets you take control of a signal's panning by drawing – or selecting a preset of – a curve in the central graph. Panflow is great for slow, subtle panning moves, faster effects, or both for adding interest to higher-frequency elements.

KILOHEARTS ESSENTIALS

3 Kilohearts Essentials is a new formulation of the kHs package, now featuring a lot more free stuff to get your teeth into. The roster of free Snap-in plugins now stands at 32 and includes most staples: EQ, compression, transient shaping, modulation and more.

BLACK ROOSTER AUDIO RO-GOLD

4 Black Rooster Audio's Ro-Gold is a solid gold plate reverb – and that's meant literally. The plugin simulates a hypothetical 24-carat gold plate reverb hardware unit, for when you've simply got to add that extra layer of luxury to a mix.

CHOWDHURY DSP BYOD

5 BYOD is a modular environment for making your own distortion processors. With more of a bent towards guitar-style fuzz, but an ability to satisfy most dirty cravings, BYOD is one for those who are never quite happy with their digital distortions.

SIXTH SAMPLE DEELAY

6 Sixth Sample Deelay, created by Integraudio, is a real hunk of delay plugin for no money. There are five types of delay on offer, plus diffusion, ducking, modulation, filtering, a tape effect and various distortion capabilities. It's one well worth having in your plugin folder.

3

4

5

6

WAVEFORM FREE 12

"All in all, Waveform Free is so capable that you'll wonder why you didn't have to pay for it..

musicradar

CREATIVE TOOLS FOR CREATIVE MINDS

tracktion

www.tracktion.com/free

6 PRESTIGE SYNTH WORKAROUNDS

Second-hand synths can cost an absolute fortune, with some particularly rare models commanding high six-figure sums. However, there are still bargains to be had if you know where to look. Here are six of the best…

WHAT YOU CAN'T AFFORD:

Roland TB-303

WHAT YOU CAN:

An original Novation Bass Station

1 You don't need us to tell you how important the Roland TB-303 Bass Line was/is. It helped define and launch dance music at the end of the '80s, largely down to a rejection of its intended use as a bass accompaniment tool. This success has seen prices of the original top £3000 – only 10,000 were originally made. Fear not, though, as there are many copies and remakes, like Roland's Boutique TB-03. But perhaps the best clone and still a great second-hand bargain, is the Novation Bass Station, an instrument designed to purely emulate the 303 when it started to get pricey during the 1990s. Novation's version was the cheap, UK alternative and sounds remarkably 303-like. Plus you can get an original Bass Station for £200 or less, or a rack version (for even more presets!).

WHAT YOU CAN'T AFFORD:

Yamaha CS-80

WHAT YOU CAN:

Yamaha Reface CS or classic SY synth

The Novation Bass Station – built with the cash-strapped 303-lustful buyer in mind

The Roland D-05: a D-50 re-imagining that, ironically, is getting pricey too…

2 So rare is the original Yamaha CS-80 that you might pay £50k+ for this particular classic synth. And what you'd get is a particularly cumbersome synth whose characteristic sound can actually be found in a lot of other instruments. Yamaha have always realised what the CS-80 was all about – yes, essentially it's that *Blade Runner* sound – so have often shoe-horned that lovely pad sound into other synths since the original's release in the late '70s. Yamaha's Reface CS does a surprisingly good job for something so compact and can still be bought new (for around £300). Much older and often cheaper, the company's SY range of synths can go all out on the CS-80 tip without even trying. Amazingly, these synths can be picked up for as little as £150.

WHAT YOU CAN'T AFFORD:

Roland D-50

WHAT YOU CAN:

Any Roland D-range synth since

3 With sales of well into six figures, the original 1987 Roland D-50 is one of the most successful synths of all time. With so many in existence, you'd think its secondhand value would be low, but far from it: its current secondhand price starts at £500. Roland's more recent D-05 're-imagining' is the obvious alternative but has enjoyed a limited run release so prices for that are

The Yamaha Reface CS can satisfy your *Blade Runner* urges without breaking the bank – or your back

soaring too. But fear not! There were several follow ups that cashed in on the D-50's success and these are where you can get its characteristic 1980s LA (Linear Arithmetic, not Los Angeles) sound for much less. The MT-32 is essentially a cut down D-50 in a box and Rolands D-5, D-110, D-10 and D-20 are that but on steroids – the D-20 is an especially good alternative as it's effectively a D-50 workstation and will likely set you back less than £300. That's a whole lot of D-50 for considerably less cash.

WHAT YOU CAN'T AFFORD:

Yamaha DX7

WHAT YOU CAN:

Several other DX synths or even a TX

4 Really, we're not sure why the original DX7 commands such big money second hand. Like the D-50, it sold by the bucketload after its launch in 1983 – so it's not exactly rare – and it was also a pain to program (unless you were Brian Eno). However it has become a classic synth, so prices have steadily risen above £600. Luckily there are alternatives and secondhand bargains out there. You can pick up various DX relatives – like the DX21 (£150-£300), DX100 (£400) and DX27 (£250-£350) – which all offer admittedly cut-down options of DX loveliness, but for much less cash. But perhaps the best DX-a-like bargain is the Yamaha TX81Z which gives you a lot of classic DX sounds for around £200. Don't bother looking for a DX1 though. One of these synths went up for sale for an eye-watering €149,000 earlier this year. We'll take a house instead, thanks.

WHAT YOU CAN'T AFFORD:

Korg Polysix

WHAT YOU CAN:

Korg Poly-61

5 Back in 1981, presets and polyphony in synthesisers were largely the stuff of dreams or required huge wallets, so Korg's Polysix – boasting 32 sounds, a mighty six notes of polyphony and a sub £900 asking price – was a sure-fire hit. 'How do we follow that?' Korg must have thought, but rather than simply tweak its winning formula, they released the Korg Poly-61. This featured digitally controlled oscillators and the same great sound as the Polysix, so in many ways it was an improvement. However, it lacked most of Polysix's pure analogue controls, replacing them with a much less welcome button-pushing setup. The prices for both synths are therefore markedly different secondhand with the Poly-61 starting at £600 and Polysix often selling for nigh on three times that price. Get yourself a 61 with MIDI and maybe a decent controller and you could land a great-sounding '80s synth bargain.

WHAT YOU CAN'T AFFORD:

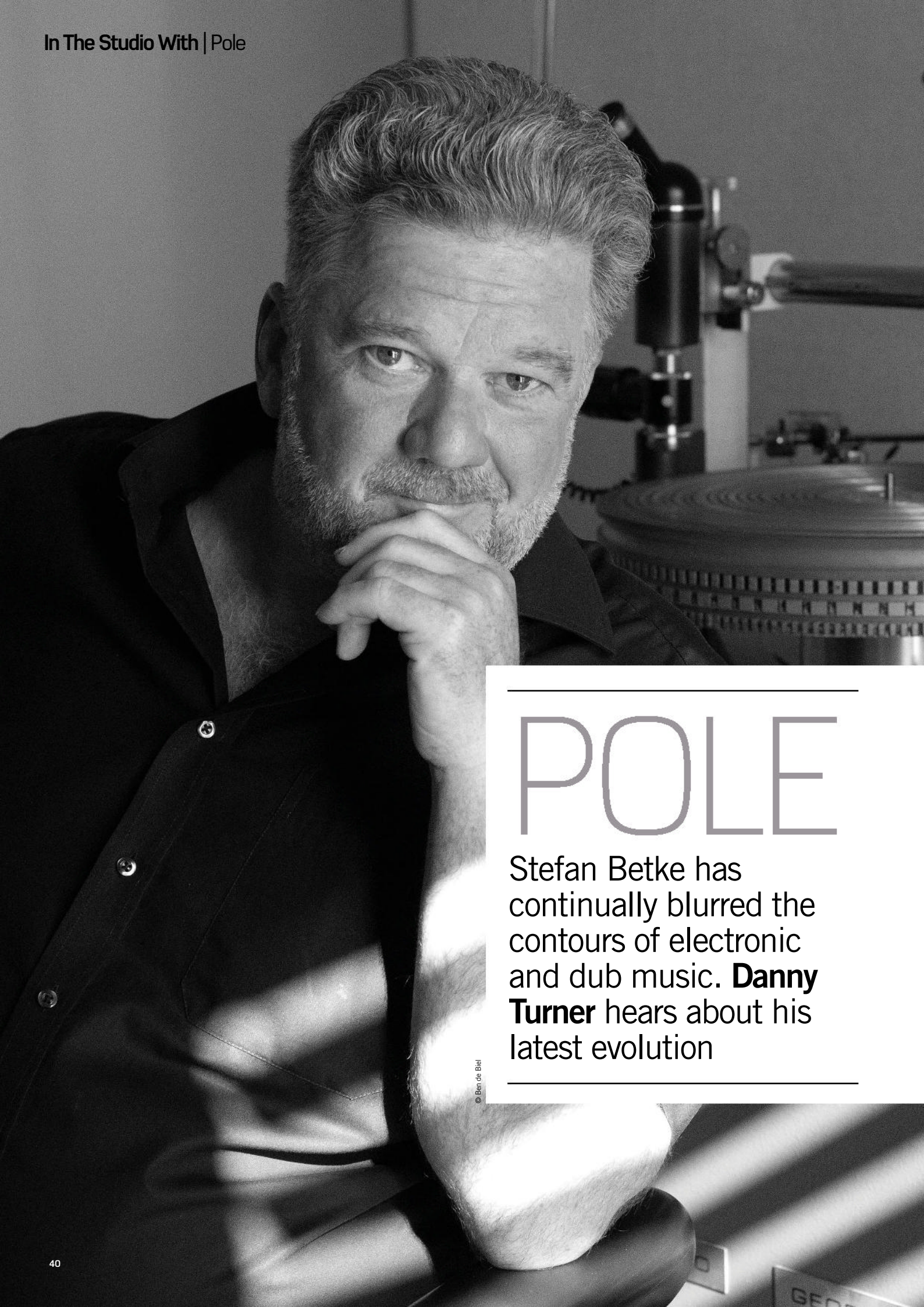
An Oberheim Matrix 12

WHAT YOU CAN:

An Oberheim rack synth

6 An original Oberheim Matrix 12 – an analogue monster synth from the '80s – costs around £18-£25000 on Reverb. Even the 6-voice version, the Xpander, is commanding the best part of £6k. However, there are alternative ways to get an Oberheim sound for less, and we're not just talking about the new OB-X8 (a relative snip at just over £4k!). For real Oberheim bargains you've really got to look at the modules from the late '80s. The Matrix 6R is not, despite its name, a six-voice version of the 12 but it can be bought for less than £1000. Then there's the Matrix 1000 (also starting at less than a grand) which is the same architecture as the 6 and 6R but has it all crammed into a curious but equally great-sounding 1U rack module. It can be programmed via software but think of it more as an Oberheim preset player. You get a thousand of them, mind, so that's a pound for each classic Oberheim sound. Bargain! FM

The Yamaha DX100 – one of a number of synths that can soothe your DX7 disappointment



POLE

Stefan Betke has continually blurred the contours of electronic and dub music. **Danny Turner** hears about his latest evolution

© Ben de Biel

Stefan Betke is now into the 22nd year of an artistic career that began in the late '90s with the era-defining Pole trilogy *1*, *2* and *3*. Always seeking to expand his musical language, Betke's idiosyncratic sound explores concepts of past, present and future within the pace, tone and echo of his favoured dub music aesthetic – a journey that's continued to evolve across a further four albums: *Pole*, *Steingarten*, *Wald* and *Fading*.

Betke's latest offering, *Tempus*, continues his explorative voyage by shifting his dub-inflected concept in the direction of jazz. Abstract and minimal yet warmly inviting, *Tempus*' interpolating bass, innovative-sounding percussion and synths are immaculately constructed… little surprise to those familiar with Betke's day job as a skilled mastering engineer operating from his Scape Mastering studio in Berlin.

You've mentioned that *Tempus* is a natural development from your last album *Fading*. Tell us more about that…

"I've been using the same technologies for the past 20 years, so my development of Pole is not really about the tools I use in the studio but my philosophies behind making music and how I use and refer to existing styles and genres like dub and jazz. I'm continually deconstructing and rebuilding elements from the musical language that I've been working with since the beginning of my Pole releases in the late '90s."

"IT'S EASY TO PLAY A SHITTY TRACK FAST AND MAKE IT SOUND GOOD BUT REALLY COMPLICATED TO PLAY A SHITTY TRACK SLOW AND MAKE IT SOUND GOOD"

What methods do you use to convey the various concepts that you're exploring through the music?

"About 30% of it is pre-planned – I have an idea of what I'd ideally like to do and then I go into the studio and try to work on the structural ideas and atmospheres that I have in my head to see what happens. With instrumental music you can't put anything into words so everything has to come from the instruments that you're playing. That goes hand in hand with accidents and elements that I try to develop, mute and destroy until, if I'm lucky, everything comes together."

If you find that your creativity is taking you into an unplanned direction will you run with that?

"If it leads me into a totally different direction that has nothing to do with the original concept I'll have to rethink the concept to make sure it's still valid to work on or just restart. That happened once with an album that was never released because it ended up being so different. Ideally, I'll keep one or two unfinished tracks and wait to see if they fit with something in the future or take samples or loops from them to use for one of my live shows. Otherwise, those ideas just sit in the box forever *[laughs]*."

The album cover is an oil painting – one of yours?

"It's an oil painting on canvas made by my brother Wolfgang Betke. We always wanted to work together on the art for one of my music covers but it never really worked out. This time, we gave it another try, put about 15 paintings on the table and listened to my music until we found one that fit with the atmosphere of the album. I'm not saying it because he's my brother, but he's super-talented. He deconstructs references in art in the same way that I do with music and this time we found that the depth, power and complexity of his work referred well to the new album, *Tempus*."

Throughout your career you have subtly shifted between genres, but dub music has always been ever-present…

"To keep a long story short, dub music – or the message of it, which is basslines and the depth and space that delays, reverbs and effects units can create – was always a big influence in my own work. I was never trying to make dub music, even though the trilogy that I released between 1998 and 2000 was so closely related to it. In the end, so many people referenced or saw me within that context that I had to be honest with myself and say that my relationship with dub was more than just about deconstructing it. I have moved away from that at times, but every album still has the same heavy basslines, rhythmical delays and loose reverbs."

Dub music has a very laid-back ambience. Presumably, that low energy allows you the time and space to express yourself?

"It's definitely helpful. The faster the music is, the more you have to focus on keeping it together in a funky way. At the same time, you can cover mistakes. A really interesting bass player that I worked with in the early '80s told me that it's really easy to play a shitty track fast and make it sound good but really complicated to play a shitty track slow and make it sound good. Dub music has the tempo for dance music but it's still spacey and played in half-time, mostly."

Percussion seems to be equally important to how you try to convey mood and emotion in your music?

"Percussion is one of the most important elements in my music in general. It doesn't matter if we're talking about the crackles on my first three albums, the drum programming on *Tempus* or how I use chords and delays because I play keyboards in a way that's percussive rather than melodic. The idea is to create a rhythmical structure with chords, bass, little sound snippets and delays that combine to create melodies by themselves. For example, if you repeat a single note in a delay and put it into a room, it starts resonating and builds a melody on top of the basic chord. You never really hear a big tonal change because I'm not going from C major to A major, for example, but melodies seem to appear from the playing of all of those single elements together. Even a resonating snare sound can create a melody."

Are your percussive sounds derived from physical instruments or software samples?

"Unfortunately, I can't play the drums so I sample snares and hi-hats separately and play them on an Akai MPC2000. Next year I'm going to try and work with a real drummer, especially in live venues where it makes sense to do so. In music you have to take risks and I feel that the input musicians can bring when interpreting the parts that I've composed might open a door for me."

***Tempus* is full of very intricately configured sounds. To your credit, it doesn't sound mechanical… how?**

"It never becomes mechanical for me because I'm playing every instrument and have to sit at the keyboard and learn how to play the ideas in my head. I'm also programming the beats myself so I have to learn how to reach a certain level. Every time I start a new track it's a challenge, which keeps the creative process really diverse because different solutions are needed from track to track. At the same time, when you make conceptual music you have to think about certain technical formats to make sure that the mechanical process you speak of is running naturally in the background and doesn't block your creative or musical headspace. You can't really separate the two."

We understand the track *Stechmuck* was an example of a mistake changing the trajectory of the track?

"I'm not looking for mistakes on purpose but since the first mistake I made led to my first trilogy of albums I've learned to recognise and appreciate mistakes and give them the chance to breathe. Sometimes that doesn't happen for a long time but *Stechmuck* has the biggest mistake on this record because the weird, mosquito-sounding synth on top of the track was a result of my Minimoog dying. That sound was originally the bassline but the oscillator couldn't get enough energy and stopped working, so I recognised the mistake and used another instrument for the bassline. When that sort of thing happens it's really lucky – I was super happy for about a week *[laughs]*."

You mentioned jazz earlier and the piano refrains on the track *Firmament* seem to take you into new territory in that respect?

"It's funny that you mentioned that because nobody else has so far. It's the first time that I really tried to play piano again. I started on classical piano and stopped for a long time and only played synthesisers, which is obviously a totally different way of playing an instrument. With *Firmament*, I was playing a piano on top of a bassline and liked how they worked together. Then I slowly reduced the piano and replaced certain chords with synth sounds so the piano is responsible for the tonal aspect but supported by additional chords. Perhaps that's why the track stands out as one of the most obvious jazz-influenced ones."

Going back to the Minimoog, are you generally a proponent of using vintage synths?

"I'm a fan of anything that helps me to create the world I'd like to represent. I'm not an analogue purist – if a plugin helps me to create the sound I want I'll use that, but I've been working on music since the early '80s so I happen to own a Minimoog, a TR-808, Prophet-T8 and a Yamaha DX and I'm using them heavily. I also have a modern Eurorack modular system and a Buchla Easel. The good part of having so many different analogue synths is that you can capture an idea quickly because you don't have to programme or patch anything. Then it's often a case of what will the modular system say if I play the same notes with different patches, so I'll switch the same chords, basslines or rhythmical structures to different tone generators and use oscillators to modify those instruments so they don't sound like themselves, or maybe I'll just record stuff and fuck it up in the computer using granular synthesis. I really appreciate having that element of flexibility."

"BEING A MASTERING ENGINEER I'M USED TO LISTENING SUPER PRECISELY... EVEN IN A CLUB I'M COUNTING THE BEAT AND EXAMINING EVERY LITTLE PART"

Did you get into modular very early or was Eurorack the entry point?

"The first modular system I had was a Roland M-1000 in 1984. I never had the money for an EMS system – they were really expensive in the '80s, but I had a Korg MS-20 semi-modular and then in the mid-'90s the Doepfer Eurorack system appeared. I've bought and sold systems and now I have a modular one in combination with the Buchla Easel."

Does modular require a different creative approach in your opinion?

"You can't compare it with any other synthesiser that's pre-patched because you need time to make a proper patch work in your system. If you only work with modular it can be a relatively fast process because the rhythmical stuff and timing is generated within the same system, but when you combine modular with external rhythm machines, synths or a computer, you have to find a way to patch it and that makes everything a little more time-consuming."

Do you generate sounds in the box too?

"I might use Ableton's Operator like a synthesiser tool and create something from scratch but I'm not into saving music as presets and reproducing them for the next album. Once a sound is made, I'm not really interested in preserving it, I'll just turn off the software or hardware synth and the sound is gone. For my own recordings, I mainly use Pro Tools or Ableton and I have Logic too but it's not something I use that much in my own production world. Basically, I find it convenient to do MIDI recording in Ableton and audio recording in Pro Tools."

Tell us about the other side to your career, which is as a mastering engineer. What was your route into that?

"I became a mastering engineer because I needed money when I moved to Berlin. I already had some knowledge of EQs and compressors from working in recording studios in Düsseldorf and Cologne, but I met some Dubplates and Mastering people and got introduced to the process of cutting vinyl. After working for them I figured out that working as a mastering engineer opened up a lot of doors in my head – I suddenly understood the other side of production and had the space to make my own compositions because I was able to pay my rent as a mastering engineer. Now I'm able to listen to other artists' music from a different perspective because I'm not just a technician but a musician."

Does having a studious approach to music in your professional life make it difficult to listen to music objectively in your free time?

"Being a mastering engineer I'm obviously used to listening super precisely and deeply into every element of a track and can never really get rid of that when composing my own music. Even in a club I'm counting the beat and examining every little part, which I know is stupid. I do really enjoy listening to other people's music, but sometimes I'm thinking more about how it's made than what it does to me. Sometimes I have to sit down and remind myself that I'm not mastering a track I'm just enjoying it."

Will you master your own music?

"Not anymore – I tried it once but it took five months. For both *Fading* and *Tempus* I used Barry Grint from Alchemy Mastering in London and I'm super happy with what Barry did because he had a perfect understanding of the music and made it sound amazing. For me, the reason an artist hands their music over to another person to master is split into two parts. One is the technical side, which is no big deal because it's something I can do myself, but the main thing is that you need a fresh pair of ears and somebody who can objectively tell you whether a snare is too loud or if something doesn't sound clean. When I mastered my own music I found so many elements that I could have done differently in the mix, for example, I'd go back in and put the bass up 1dB and return to the master, but now the kick drum wasn't loud enough so I'd have to go back into the mix again. That doesn't help anybody. The artist should do the composition, the mix engineer should do the mixing – although nowadays they are usually the same person – and then you need a third person who listens and says, okay, I understand your idea and I'll help you to make it sound good on every system."

What's your view on how the mastering engineer's role has evolved over the past several decades?

"At the beginning of the '80s when the CD came out, not that many people mastered for it – it was mostly printed to a glass master and reproduced to CD in a factory. Before that, you just needed someone who could transfer a recording of, say, The Beatles, from the mixing room onto a vinyl cutting lathe that was standing in the cellar of the same building. They sent down the tape and the technician transferred it and then shipped it to the pressing plant. In those days, there were not

many ideas about how to optimise sound but we're now living in a world of MS encoding and have tons of tools to change a general recording or fix mistakes to make the vocals less harsh or the bass less loud. A bad song is a bad song and the mastering cannot help that but it can help with the tonal listening quality. Obviously it's frustrating that artists and labels put so much money into a good mix down or master, only for someone to play it back on a cell phone."

Is there any conceivable benefit to that?

"I suppose that if somebody is really interested in music they might start with a cell phone or by listening on Spotify, just like I listened on a mono radio system before recording to a cheap cassette player. Every record that I thought was interesting to me I bought later on vinyl, so you can start with a shitty system and if you're really interested in fidelity you will change the listening quality at a certain point. It's a bit like how people going to a gallery and looking at a Van Gogh original that looks exactly like the print I have in my kitchen."

You run Scape Mastering in Berlin. Do you master for a specific area of music?

"I'm able to work with a big diversity of artists, so I'll master for Alessandro Cortini in the same way that I would for Martin Gore or techno, listening jazz, dub reggae or dubstep producers. As long as you're respectful as a mastering engineer and don't pretend to have knowledge of a genre, then you can help them. I like to think I have a lot of knowledge because I've been listening to lots of different music for a long time, but I'm very thankful to be able to work with so many interesting artists and hope they can continue to trust in me and we can continue supporting each other."

You have some Studer tape machines. Under what circumstances will you use those on productions?

"On my own productions, if it makes sense musically, I'll run stuff through a Studer A80 ½-inch tape recorder to record the stereo file before I send it to mastering. When it comes to mastering for others it's the same; if I think a track needs an analogue upfreshing because it's primarily been made in the digital domain, I'll run it through some analogue EQs, into the tape machine and then back into the digital world. I also have clients come with old recordings on tape that need to be played back for remastering. I did Alphaville's whole back catalogue two years ago where all the original recordings were on tape, so I'm lucky to have these machines to play them back on and all the equipment here is in perfect condition."

You have some very pricey gear. What would you recommend people on a budget use instead?

"Nowadays, the algorithm in computers and plugins are so good that, without wanting to advertise these companies, you can use nearly any Softube, Plugin Alliance or UAD Audio plugin on your tracks. For example, I have both the plugin and hardware version of the Dangerous Bax EQ and although the plugin is not the same it's very close. That stuff is affordable but if you want to go one step higher you can always buy used equipment – a Klark Teknik DN410 parametric EQ can be found for reasonable money and you can always get it refurbished if you're willing to pay another £150. If you have a lot of money you can end up buying a Manley Massive Passive EQ for 7,000, but I'd recommend every producer follow the technical needs that they have. Invest first in the room sound so that you're not sitting in the wrong position. And then a good speaker system, because a good EQ won't help you if you don't have a good speaker to show what you're doing with it."

What speakers are you using for monitoring?

"In my main studio I use ATC 110s and in the smaller room, which is only 15-20 square metres, a pair of Neumann KH 310s with a subwoofer system. If I was only running one room I'd go for two speakers for referencing, but luckily I can transfer the audio between the two rooms via Ethernet."

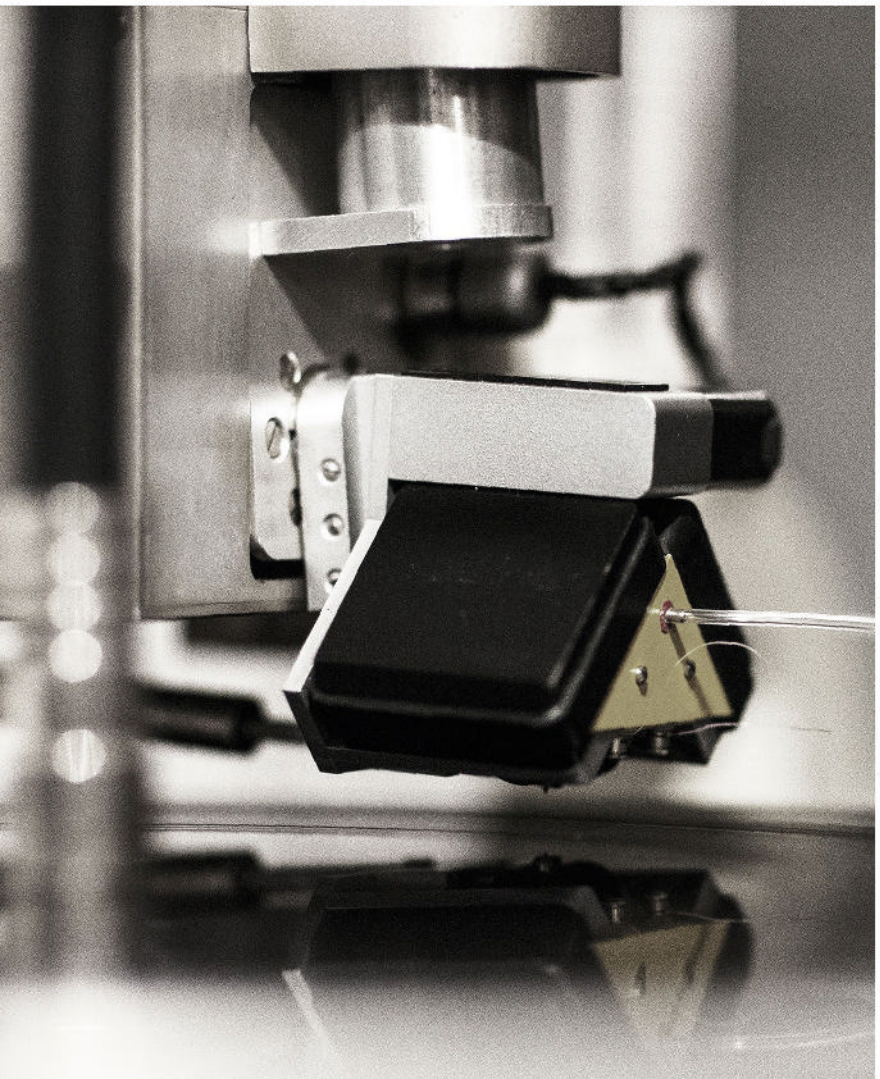
You also have a vinyl cutting lathe. Are these in big demand now due to the vinyl resurgence?

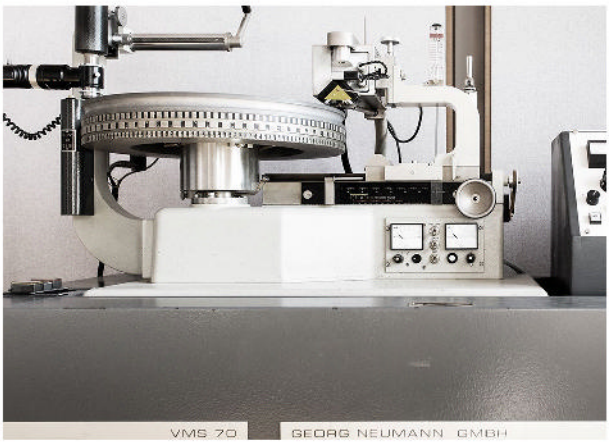
"Vinyl has definitely come back over the past 10 years or so. It was still pretty big in the '90s but it dropped a bit with MP3 and Napster in the 2000s. A lot of studios still have lathes actually and quite a few are trying to buy and refurbish them even though it's super-expensive because it's hard to get spare parts and you have to rebuild everything. Learning how to cut vinyl on a lathe takes time, so if you want to create a vinyl release, trust somebody who has a lathe and a mastering studio rather than someone who says they can master for vinyl and knows a friend who can cut it. That doesn't work." **FM**

WANT TO KNOW MORE?

The new Pole album *Tempus* is out November 18 on Mute Records. For more, visit **pole-music.com**

SCAPE
MASTERING

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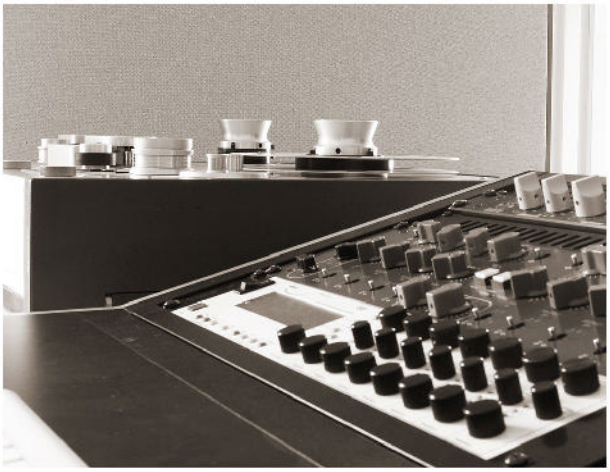


PRODUCE LIKE...

Mandidextrous

The Bristol-based producer on creating their unique combination of hard techno and drum & bass

Mandi's studio finally took shape in a Bristol warehouse following a period of uncertainty

Over the course of the past decade, UK producer Mandidextrous has become known for their high-energy tracks that blend elements of a multitude of fast and hard club genres. After early success in the world of hard techno (or tekno, as it's often styled around the illegal rave circuit), Mandi's career has taken a turn following the forced reset of the Covid pandemic.

Through a mentorship scheme with powerhouse DnB label RAM, Mandi rediscovered their drum & bass and jungle roots and began pioneering a new sound blending the broken grooves of DnB with the pounding, hard kicks of tekno.

We sat down in Mandi's recently complete studio to talk raves, lockdown and the production process behind the high-energy Mandidextrous sound.

Tell us about your production journey. Are we right in thinking you got started in the free party scene?

"I started as a DJ when I was probably, I don't know, 15 or something like that. Very late '90s. I did that on the illegal rave scene for quite a long time, then when I was about 20 I stopped partying so much, stopped going raving all the time and started wanting to get into music production.

"I had a couple of friends who were already doing it and I found the whole thing fascinating. I got a copy of Reason 3.0, which is where I started, although I found it really confusing. Then one of my friends who was working on Ableton showed me that, and I was off. I've been on that path ever since then.

"Originally, I didn't really intend on writing music for anyone else other than to have tracks to play in my DJ sets. I just wanted to play stuff that I wanted to hear, but that I couldn't find. And, you know, having that challenge of playing music to people that you've made is really amazing. So yeah, that's where it all started. It all came out of the end of me being on the rave scene, starting to not want to go out so much and just kind of be a recluse and write music *[laughs]*."

> "I BASICALLY DON'T HAVE ANY CHILL WHEN IT COMES TO THE MUSIC THAT I WANT TO PUT OUT"

You've become known for playing quite hard, high-BPM tracks, was that where you started from?

"Yeah, I basically just don't have any chill when it comes to the music that I want to put out and play! I started with DnB and jungle in the late '90s then, when I got to about 17 or so, I discovered techno and went deep in the rabbit hole of free parties, drugs and all of that stuff.

"I found techno really cool. It really reached to me, as I liked the way you could get lost in it a lot easier than DnB. I was DJing techno for a couple of years. Then that evolved into the music that I create now, because I wanted to have my favourite DnB tunes, but as techno. That was what it was in my head.

"I started off writing numerous bootlegs of famous DnB tunes, which now working in the drum and bass industry is quite taboo. I hope no one gets too annoyed at me when they come across some of my back catalogue. I just was writing it as music for my sets, you know? I'd take like, Chopper, the Shy FX version, or like Renegade Terrorist or something like that, and put a four-four kick with it and turn it into a techno tune. Quite high BPM, you know, and that's kind of what the whole thing was about. For me. I just got obsessed. I'd spent some time in the techno world, some time in the DnB world, and then I wanted to fuse them together. Yeah, but keep the energy up. That's it really – no chill Mandi!"

How has your approach to production evolved over the years? Is Ableton Live still at the heart of it?

"Yeah, I'm deep into Ableton. I've had a few goes at jumping outside

that box and going to a different DAW, like Logic or Cubase, but yeah, I just stuck with Ableton in the end. I'm really obsessed with the workflow. When I have an idea it allows me to just get it on the page really quickly. No faffing about. It's just kind of like my warm cuddly home from home."

Do you use many samples or plugins?

"I use a lot of what's in the box with Ableton, because obviously their stock stuff is really amazing. I'm a big fan of the Amp plugin. I do use external VSTs. I'm quite particular about what I buy, because I don't want to waste my money. I think about what I actually need. The other day I bought the Oxford Inflator, for example, because I really want to work on my self-mastering.

"But yeah, mainly Ableton stock stuff. Technically they provide everything I'm after. With production, I'm always learning as I go, and learning those stock plugins has been really productive."

Would you say your style balances elements of both techno and DnB?

"Up to about five years ago – when things started really changing for me with my music career – I was writing a lot in a genre called hardtek. To be honest, it's a genre I've never really been into as a listener. Although I've been a bit of a key player in the UK hard techno scene, I've never been into hardtek and I couldn't tell you a single scrap about the history of it. Whereas if I'm asked about the history of DnB, I can talk for days. And the same goes for, like, acid techno stuff that I used to be into."

How have you found the DnB scene has changed post-pandemic?

"It seems a little bit different. There's this massive energy from the young crew. The youths that pre-Covid probably weren't old enough to get into clubs. But they've spent two years exposed to all of us crazy loons online doing live streams, and they're just so excited to get into clubs. The energy in youth is crazy cool.

"I think, with austerity and everything like that that's been going on for a while, people just want to go out and release, you know, and the fact that we can do that again now, it's mad. I've had the busiest year of gigs in my life so far. That's heightened by the fact that I've had some good releases, and backing from RAM and stuff like that.

"Also for me, as a queer artist, it's been amazing to see such a big presence in the queer scene in DnB. Yeah. And, you know, in hardtek lands, I was really one of the only queer artists. It's basically all guys. But there's this big shift in equality and gender right now in DnB."

You've been involved in the EQ50 mentoring program in recent years...

"Yes, big up EQ50 in a massive way. If it wasn't for EQ50 I don't think I'd have got where I am now, post-Covid, because pre-Covid I was starting to lose a lot of confidence about my career in my music. I was really lucky. Myself and a girl from Scotland called Anikonik, she's a really good producer and DJ, we got put with RAM under this mentorship scheme. We were talking online during lockdown, which was really helpful. I had to take a job delivering for Amazon because I was stuffed without gigs. But coming home in the evenings and jumping online with them was really fun. I felt like I could truly put across what I wanted from my career. Luckily the gang from RAM really backed me. For them to take me under their wing, it helped give me confidence, especially as a trans person coming into drum and bass, which there was not very many of at all. I was really daunted by it. But they really helped – they opened some doors, and helped me put across the fact that I am, you know, really into making music. It's my passion, my life, and it's what I really want to do." FM

ADAM Audio A77X Studio monitors fit the bill nicely for Mandi's blend of bass-heavy, high energy sounds

TELL US ABOUT YOUR STUDIO...

"I haven't been here that long, less than a year. During Covid I had some problems with housing, I was also working for Amazon, then for Ocado, and I was trying to save money during that time. Then when gigs started coming back I got really busy and – thankfully – money became a bit easier to obtain.

"My friend bought a house and I was really lucky that she let me come and live with her if I helped her to do it up. But she wasn't up for having a studio at the house; not the professional kind of studio that I wanted anyway.

"So instead, my friends at [Bristol promoters] Rumble in the Jungle, own this warehouse that we're in, and they let me build my studio here.

"It was a three-month project and cost me a fair few quid. I got stuck in and involved myself; I wanted to be part of it. One of my friends is a professional carpenter and he's built studios before. I got him in and we just paid for the materials – which were disgustingly expensive – and then put it together ourselves. It's been great. It's now my little hub."

INCLUDES VIDEO

Mandi on combining techno and drum & bass influences

Why I love my....

Mandi on the track they wished they produced

WANT TO KNOW MORE?

Keep up with the latest from Mandidextrous: **soundcloud.com/mandidextroustnt**

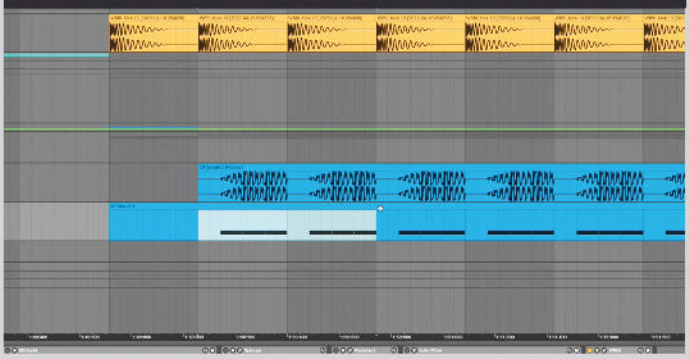
GET THAT SOUND...

Creating a hard techno kick/bass sound

Mandi breaks down the creation of hybrid low-end elements in their tracks

01 >

The first element of the hybrid sound would be the choice of kick: "Instead of creating a big, fat techno kick that's all the way down at 40 or 50hz, I use a DnB kick, which is a lot higher in frequency and a lot punchier with less sub. It means that I can put more sub into the bass."



02 >

The bass sound itself is made using Xfer Serum. "It's essentially just a simple pluck bass," Mandi explains. Its creation starts by bringing the decay time right down on the amp envelope, with a near maximum sustain, to create a sharp, percussive sound.

03 >

Mandi uses a sawtooth LFO to modulate the filter for a tempo-synced 'chopping' sound. "Just to give it the high end kind of click I gave it some resonance," Mandi explains, "and a bit of drive to add some fatness."

04 >

Next Mandi uses a touch of frequency modulation from Osc 2 in order to add thickness. Serum's sub is also engaged, sent directly to the main output, which adds bass weight to the sound.

05 >

Mandi uses CableGuys and Nicky Romero's Kickstart 2 to duck the bass sound around the kick, which gives both more space and adds movement.

06

Finally, Ableton's Amp device is used to add distortion to the sound. "It just brings a whole thing to life," Mandi explains. "It goes from being quite a thin kick bass to a really powerful kick bass, and that's the kind of energy that I kind of want to have in my tracks."

KAITLYN AURELIA SMITH

Doyen of the Buchla and maker of modular mayhem Kaitlyn Aurelia Smith returns with a new album, the beautiful *Let's Turn It Into Sound*. **Hamish Mackintosh** finds out more

Hard to believe that *Let's Turn It Into Sound* is Kaitlyn Aurelia Smith's ninth album… Where does the time go? As ever, a new album from Kaitlyn is a fresh journey into her sonic world, and her latest is no exception with its rich palette of pulsing Buchla tones, intense, flickering beats and joyously manipulated vocals that see Smith pushing her own envelope further with each new collection of songs. *FM* caught up with Kaitlyn Aurelia Smith in her LA studio, taking a break from the process of preparing for her forthcoming live shows, to talk shop and get some insight into the machinations of her workflow and ever-innovative studio experiments.

Is it true that you were given your first ever modular by a neighbour who had it sitting in his garage?

[*laughs*] "I still think about how special that experience was… Not really knowing anything about modular synthesisers because I didn't study that in school, I studied sound engineering. Then to have a neighbour come to my place with a Buchla and say 'explore this' opened up my whole world. I Googled it and only then realised what a big deal it was."

started just with Buchla synths as that's what my neighbour primarily had although he had a couple of EMS and EML ElectroComp synths too. It opened up the doorway for me to analogue synthesis… modular and non-modular. What really sparked my interest was that interaction with older components and older interactions with electricity. I've played with more contemporary modular systems a little bit. In the Eurorack world I've played around with the Make Noise system, 4ms and some other makers but I tend to always gravitate back to the older gear and back to the additive synthesis as that really resonates with me. I love the Overtone Series [thinkspaceeducation.com/blog/overtones_pt1], which stems back to my classical musical training and additive synthesis really lets you play with the Overtone series [*laughs*] but let's not get too into that!"

One suspects that, with all your lovely vintage modular kit, maintenance is an important part of your process?

"Yeah, it's interesting. Back when I borrowed the Buchla 100 for about a year, I tried to buy it off my neighbour, but he said 'no, I won't put that responsibility on you'. I didn't understand when he said that but then, when I was able to save up and buy a few older pieces of equipment… I bought an EDP Wasp and some others and then I realised just how much maintenance went into just even keeping the knobs and pots from getting dusty! So, I stopped my collection at that point.

"There are studios that have these vast synth collections or in LA we have the Vintage Synth Museum that has an enormous collection of old synths so now I mostly just go to all of the places where all the unicorns are carefully maintained."

> "TO HAVE A NEIGHBOUR COME TO MY PLACE WITH A BUCHLA AND SAY 'EXPLORE THIS' OPENED UP MY WHOLE WORLD"

Your sound engineering background must've been handy with the technicalities of the modular environment?

"Yeah, I think it's definitely helped with pathway thinking and understanding audio routing. I had a really great teacher at the school I studied at who explained how sound engineering is just an extension of the ear. That was such a beautiful way of thinking about capturing sound and I feel like it really connected me to how to approach synthesis where, instead of being an extension of the ear, it became an extension of the voice for me."

Is it the tactile/hands-on nature of modulars you enjoy?

"That definitely does play into some of the joy because I have lots of energy, especially in my hands so when they have lots to do I get really excited and that helps me get into a flow state. I think I was that kid that always wanted to touch the buttons I wasn't supposed to touch [*laughs*] so maybe with synthesisers it's that there are a lot of buttons, but you're allowed to touch them."

Do you think people still assume that machines can't have 'soul'?

"I love personifying machines, it's endearing thinking of them like that. It's hard to say what a lot of people feel towards machines, but I love watching my family interact with Alexa or just people in passing reacting to machines in that way. [*laughs*] It's fun to watch people get mad at machines."

Did cutting your teeth on your neighbour's Buchla mean you've leaned solely towards West Coast modular since?

"It definitely planted a seed of 'what are these devices?'. It

You're a proud owner of the desirable Buchla Music Easel… When did you first come across those?

"My partner and I bought it as a wedding present. We'd initially asked people just to donate money for us to buy a cow [*laughs*] but then we realised how much responsibility a cow was going to be, so we got the Music Easel instead! Sometimes I think how wonderful it would be to have a cow but… no regrets. It began my whole career so definitely no regrets."

What is it you find so engaging about the Music Easel as an instrument?

"At the time, it was just the only Buchla I could afford. Since then though it's become an extension of my brain because I've played with Buchla instruments so long that the language of them is so easy for me to work with. I love that it's carry-on size so I can take it on a plane with me. I think the triangle core oscillator is a sound that I really resonate with. It just feels like an extension of my voice, going back to that initial thing we were talking about. There's something about the triangle core that resonates in a similar way to how my voice resonates in my body."

It seems important to you to still find a place in your music for the human voice or real strings too though?

"I think it is, for me, just because my roots started in orchestral music and as for the voice aspect, that's usually where all the songs start from. I'll get a melody, hum it for a while and then translate it to a synthesiser. So, it's always felt

like a natural part of the process to, in some way or another, add the voice."

So, do you ever go to the modulars with a blank canvas, or do you tend to have an idea of what you want to do?
"It's always a little bit of everything. Like, there's usually an intention and a lot of openness to surprise. Then sometimes I'll just show up, if I have the space for it, keep everything flowing and just see what happens. I like to have a daily practice playing or interacting with a synthesiser, piano or just something musical to always keep it flowing."

What were the main bits of gear you used on *Let's Turn It Into Sound*?
"I used a lot of the Music Easel, the Buchla 200e and the Buchla Lightning. I have a Tom Oberheim SEM module, some Moog gear and the Wasp, of course. There's a lot of my voice and re-contextualising my voice too."

Are you still using Ableton as your mainstay DAW for recording everything?
"Yeah, I still use Ableton because it helps me with when I transition into playing live. I've already set up environments of how I recorded it because I'll usually just track the same way that I'm going to play it live when I'm recording so that I'm thinking ahead for the live show."

The first few times you took the modular gear out live must've been a bit nerve-wracking?
"Oh my gosh, yes! I really like mixing myself for live shows; the way that in Ableton you can make Unity a set number… you can record what you want Unity to be. So, if I bring up a fader it doesn't necessarily go to 'zero', it goes to what you recorded it at, which means you can have your mixing preferences memorised and I really like having that ability."

Is Ableton the best DAW for working live with a modular setup?
"I think it's the one that I've been most familiar with for a while now. I made a jump from Pro Tools to Ableton about eight years ago. I think DAWs in general are a case of when you learn one you want to stick with it for a while as they take a while to learn properly."

Is it Ableton's fluidity that makes it so popular with live artists?
"Yeah, and I think that being able to map things is really handy. I'm sure there will be other DAWs that allow you to do that, but I haven't explored much out with Logic, Pro Tools and Ableton."

How have you managed to strike a balance between creative experimentation and just being sucked down a modular wormhole?
[*laughs*]"Yeah, I still definitely do get sucked into wormholes, but I really like them, it's a creative feeling for me. I tend to have the mindset that every sound is going to get used so I save things for later if I'm not going to use them at that moment. There's something about the 2D screen that, at least for my brain, feels less creative to stare at for long periods of time. So, I think being able to get out of the 2D and into the 3D has been really helpful. I know that modulars are really expensive and that has been a limitation for me as well. I always like to encourage people to look into how many

"I KEEP SAYING TO MYSELF THAT, IF I MAKE A LOT OF MONEY, I WANT TO MAKE A SYNTH LIBRARY FOR PEOPLE TO COME AND PLAY ON SYNTHESISERS"

resources are out there for learning as that's how I was able to learn. There are so many libraries, so many residencies and so many amazing synth stores that you can go to and play with the synths."

Any thoughts of ever making a sample library from your modulars?

"I haven't really thought about that but maybe someday far in the future. [*laughs*] I don't know if I'm organised enough to do that right now. It's already such a headache for me to find my own sounds that I've been creating!"

***Let It Fall* is one of several standout tracks on the album. Could you talk us through the writing of that?**

"That means a lot that *Let It Fall* resonates with you as it's very important to me. It's a song that I made for a piece of architecture. There's a chapel on the land I grew up on and the chapel doesn't really have a religious connotation to me, it's just always been this really beautiful space that I've always gone inside and sang in. So, I wanted to make a song that was an 'ode' to the chapel so that's the song that came out for it. I've always been curious about the sort of '360 degrees' feeling of music where you can feel it all around you so that song was an exploration of how I could rhythmically create that illusion. I don't know if it worked but it was a fun exercise to play with."

Was that one of your songs where the melody came into the studio from outside?

"Yeah, I remember laughing when the main melody came to me as it was such a weird melody [*laughs*]; it just felt like a joke my creative self was playing on me! But it all came together and started to make sense when I put it all together… or at least it made sense to me. So, there's a lot of voice, definitely some Music Easel and some 200e on that track. There was a lot of stretching and manipulating done to my voice too."

Do you enjoy collaborating with other artists?

"I didn't have anyone collaborating on this new album, but I do enjoy collaborations as each one feels really different and magical."

Is there new material in the pipeline or do you focus on the live shows now?

"Sometimes it happens that fast as it takes a while for an album to come out so there's definitely a lot of time to come up with something for the next one. For this one, though, I've been focusing so much on the live performance that I haven't started writing the next thing. I have snippets of ideas of what it might be like and I'm in the filling stage where I'm filling with lots of inspiration for it then I'll get what I call my 'inner gong' feeling and then I'm ready to make the next one."

Do you have any advice for anyone looking to start out making music with modulars?

"I guess it would be to find a synth shop and spend some time trying out lots of different synthesisers to find out what sounds you resonate with. I keep saying to myself that someday, if I make a lot of money, I want to make a synth library for people to come and play on synthesisers as there are so many people like me who've had to borrow synths. Explore before buying or if you're someone who's excited to buy then maybe start small with something fairly simple. I get blown away when I play on even those little Korg Volcas at how much you can actually do with them. So, you don't need a really big system to start making music."

Before we forget, there's a companion book that people can buy that goes with the album, isn't there?

"Yeah, it goes with the album but I'm selling that separately through my Instagram on an imprint I made called Touch the Plants [touchtheplants.com]. It's just a little book about my own inquisitive journey with sound and it's questions that I asked myself during the process of making the album." FM

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Native Instruments Komplete 14

NI's latest bundle brings a new version of Kontakt but also branches out beyond the company's own product line. **Leo Maymind** unpacks what's new

Komplete 14 is the latest instrument and effect bundle from Berlin software giant Native Instruments, and with four tiers of entry for customers and an immensely wide variety of content, new instruments, and new sounds, it is sure to be a doozy to sink your teeth into.

Native Instruments, who have been in the news this year due to their new Soundwave collective, a partnership with fellow software companies iZotope and Plugin Alliance, has always been a forward-thinking software design company, as they were historically one of the first companies to truly embrace the digital future and all of its possibilities. So the new partnership makes a lot of sense in that respect, as this conglomerate will offer never-before-seen connectivity between the products of these three brands.

That connectivity starts with Komplete 14 Standard, which includes iZotope's critically acclaimed Ozone 10 mastering software and a finely curated selection of plugins from Plugin Alliance, including a channel strip, a vocal tuner, and an analogue synth emulation. And that doesn't even scratch the surface of what's included in Komplete 14 Standard – there's a total of 260GB of content waiting to be explored.

WHAT'S SO GOOD ABOUT KOMPLETE 14?

So what makes Komplete 14 unique? One of the biggest draws is the new Kontakt, NI's flagship sampler. Now in version 7, Kontakt has finally been introduced as an upgrade from the previous version, whose UI needed a much-requested overhaul. Kontakt can run as a standalone app or work within your DAW and is essentially the host for different instruments, both sampled and synthesised.

There's a new browser feature that allows you to search all of your presets at once and also includes images for each library so finding what you want is more efficient.

As Kontakt alone features nearly 1,000 instruments to explore, this enhanced browser feature is greatly appreciated; the depth is astounding. There's a lot of new instruments as well, like Session Guitarist: Electric Mint and Picked Nylon and Session Bassist: Prime Bass, each of which give keyboard players almost unheard of recording control.

Komplete 14 Standard, the middle tier with the widest appeal, in our view, is where those plugins from iZotope and Plugin Alliance are included; also included are bx_console Focusrite SC, bx_console N, bx_crispytuner, bx_limiter True Peak, Brainworx bx_oberhausen, Knif Audio Knifonium, and Unfiltered Audio LO-FI-AF. bx_console Focusrite SC is a highly lauded channel strip, so Komplete users will surely be excited about that. And bx_crispytuner is a quick, easy way to get tuned vocals.

There's also such a wide array of synths (Massive X, Forms, Rounds, for starters), sampled instruments, and new effects that it's very easy to see how Komplete 14 is a great environment to seek inspiration in. One of the most unique things about many of the included instruments in Komplete 14 is how layered and multi-faceted they each are. Almost every single soundmaker included in this package includes some sort of A/B layer, built-in effects, and plenty of modulation, so it never really feels like you are starting from a completely blank slate.

There are also so many included loops, samples, and presets with both the Expansion Packs and other Kontakt instruments, that your inspiration has many places to start. Kicking off new ideas with Komplete is effortless, especially if you're also using pieces of their hardware like the M32 or S-series of keyboards. The entire Komplete Kontrol series integrates incredibly smoothly with Komplete, as you'd expect, using the NKS protocol where macro controls for whatever instrument you're using show up on the built-in screens on Komplete Kontrol hardware. This workflow makes for quite a seamless hardware-software integration, and while it's less useful in finishing ideas, it definitely gives Komplete an edge towards helping producers get ideas out quickly and efficiently.

Ozone 10 Standard

The AI-assisted mastering plugin from iZotope, now in iteration 10, joins Komplete 14 Standard, adding another level of sheen on your tracks

Native Instruments have added a huge incentive in the Komplete 14 Standard package for those trying to decide between Select and Standard, and that is the integration of Ozone 10 Standard, courtesy of Native Instruments' partnership with iZotope. Ozone has long been heralded as the one of the best ways a home recordist or bedroom producer can get professional level mastering results in their DAW, and the plugin has evolved over the years to become easier than ever to use. That's especially true with version 10 of Ozone, which now features an improved AI-assisted workflow to speed up your mastering. We're going to take a very brief overview of the software to get you acclimated so you can start using it with your Komplete productions. Let's dive in.

1 Add Ozone 10 to your master bus. If you have other limiters or compressors already on your master, turn those off to allow Ozone to work to full capacity. Given that Ozone has modules for compressors, EQs, limiters, vintage warmers, and stereo spreaders, you can accomplish everything in this one plugin.

2 Either use the AI assistant to help choose modules and settings or do it manually. If using the AI assistant, click the icon near the top and find the loudest portion of your track. Hit play and let Ozone's AI tool analyse the dynamics and frequency spectrum of your track.

3 After the assistant analyses your audio, you can refine the results further by selecting a target genre on the left of the plugin window. To tweak further, select Detailed View at the top, to open the full window with each module available for full tweaking.

THREE QUICK TIPS

1 Consider Komplete Now as a cheaper alternative for those not wanting to shell out for the pricier Komplete 14 options. Komplete Now is a new subscription-based approach that NI is trying that is $9.99/month or $99/year and offers a stripped back production tool set of what's in larger Komplete packages.

2 The curation of the Komplete ethos shows through in the many "Expansion Packs" that NI includes bundles of with each version of Komplete. These packs are not just folders of loops and samples but also come loaded with synth presets for NI mainstays like Monark or Massive, as well as Maschine and Battery-ready drum kits.

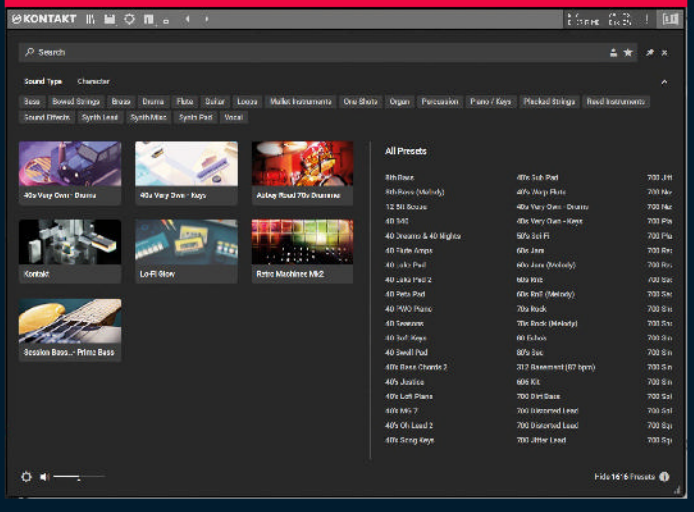
3 Komplete 14 has a massive, spine-tingling array of these Expansion Packs, including everything from 'Concrete Sun', which is a collection that "pays homage to Japanese hip-hop culture" to 'Lunar Echoes', which explores every shade of expansive melodic techno, again including everything from samples, kits, synth presets, and full loops.

Exploring the updated Kontakt 7

NI's flagship sampler has been updated in this new round of Komplete. Here's what's changed for those familiar with Kontakt

01 >

The first thing you'll notice upon opening the new Kontakt 7 plugin is that the browser window has changed dramatically. It's now possible to search all of your Kontakt content at once, and find presets according to Sound Type or Characteristic easily using the tags at the top. This includes all of the factory content plus third party content, so it makes finding the right sound much easier than going through each individual library.



02 >

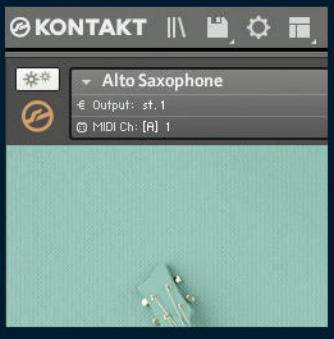
Upon searching for an instrument, sound or vibe, you'll see a list of appropriate presets pop up. Auditioning these is as easy as clicking on the preset name; you'll also see a star appear when hovering over the name to make favouriting presets easy, so you can save a certain sound you might come across, even if it's not right for that particular project.

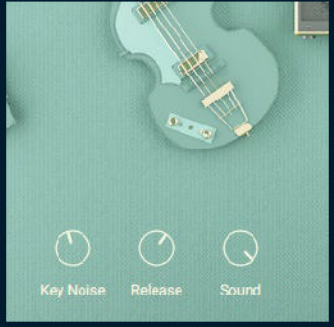
03 >

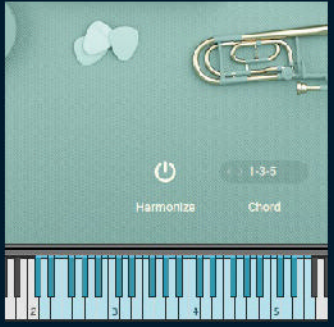
There are a number of presets in Kontakt that are meant for quick idea generation and one of those is the Band expansion pack, which includes full drum kits (with drag and drop groove presets), guitars and basses, and even horns and saxophones. Each instrument type has a minimal amount of expressive control but it's just the right amount to allow for realistic sounds.

04

For example, the Alto saxophone preset in Band has controls for Key Noise, Release, Sound (which acts as a quick filter), and Tremolo. A built-in harmoniser that can lock to a specific key and has a simple selection of chord voicings and a fully featured effect section make up the remainder of the controls on offer.







KOMPARING KOMPLETE VERSIONS

There are four different versions of Komplete 14 to choose from. Komplete 14 Select is the lowest tier and will set you back £179. Komplete 14 Standard is the next level up and includes more than 125 instruments for £539. Komplete 14 Ultimate comes with a price tag of £1,079 but includes enough content to keep you busy for a lifetime – more than 200 products. And if that's not enough, there's Komplete 14 Collector's Edition, which includes everything possible (over 250 products) for £1,619.

Note that Native Instruments does offer upgrade pricing so it's worth logging in to your account and seeing if such an offer exists. And it's also well known at this point that NI does an annual sale around December where prices for many of these packages drop even further, so if you'd like to dive in but want to save cash, you might be in luck soon.

Komplete 14 Select, in a nutshell

Komplete 14 Select is the best for small budgets. While it's the smallest of the packages, it still includes a whopping 40GB of content, so there's plenty to keep you busy. NI's two most popular synths, Massive and the Moog-emulating Monark, are included here, as is Reaktor Prism, a physical modeling synth and effects processor designed by NI founder Stephan Schmitt. Raum, a flexible reverb effect with a Freeze function, and Replika, a three-pronged delay plugin, also give high quality spatial effects. There's more too, including realistic organ, upright piano and bass instruments, and a plethora of Expansion packs.

Percussion options in Komplete Standard

Komplete Standard offers a wider range of content, especially where percussion is concerned. While Select only includes Drumlab, Standard includes NI's industry-leading Battery 4, 40's Very Own Drums (see next page), Polyplex, Butch Vig Drums, Abbey Road Drums, Studio Drums, and Empire Breaks. This range of resources can deliver anything from ultra-authentic garage rock beats to twisted, glitchy, futuristic riddims. Polyplex, the newest of the bunch, features eight tracks with four sample layers each and a highly integrated randomize function applied at the global, sound, or sample level.

Diving into the Play series

With so much content in the various packages, it can be hard to figure out where to even begin. A good starting point is the Play series of instruments, with their playful approach to both their UIs and sound design. It encompasses a wide range of sonic starting points; from the gritty sounds in 'Lo-Fi Glo' to the drill-focused approach of 'Deft Lines'. But they each share a common look and workflow: a simple, bright UI with eight macros at the bottom of the plugin window, with special tabs for deeper sound editing, a built-in sequencer, and a layered effects section with six different effect slots.

Playbox for Play Time

Another instrument worth mention (included in Standard and up) is Playbox. This works inside Kontakt player and combines samples, chords, and effects in a unique way. Each preset includes eight chords that are auto-mapped to single notes, and each chord is made up of different samples, so you're never just hearing static sounds as you change chords. These are fed into a complex series of effects controlled by macro knobs and a dice function randomly changes parameters of your sound. While the bright, colourful interface draws you in, the sonic possibilities of Playbox get you hooked for the long haul.

Exploring 40's Own Keys/Drums

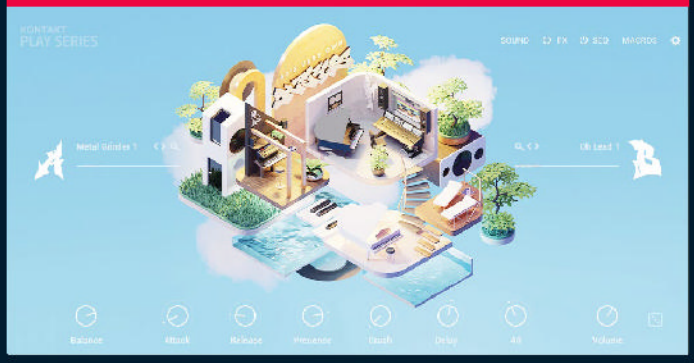
Using sounds crafted by Drake's producer Noah "40" Shebib, this custom Kontakt instrument is one of Komplete 14's highlights

03 >

The seventh Macro knob controls the "40" amount of each patch; however this is much more than rolling off the top-end. If you click on Macros and then click the 40 knob, you can not only see what parameters are being affected by the 40 knob throughout its turn, but also change which parameters it controls. This gives you incredible control over each patch's sonic character.

01 >

Each instrument in 40's Own Keys has an A and B layer for an instant, layered sound that is sure to evoke the kind of atmosphere Drake's music has been known for. The A-Macro knob is always going to be assigned to the balance between the two layers, so that's a quick start to see what textures exist in that balance.



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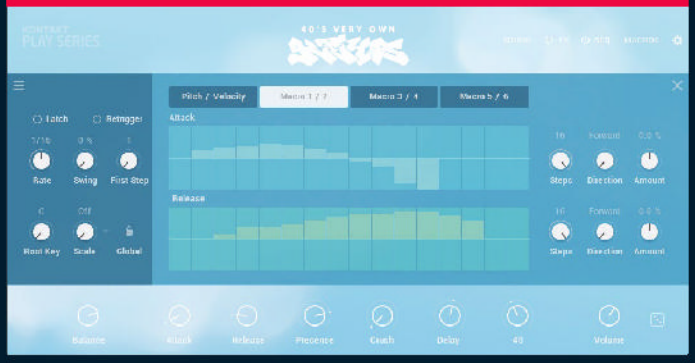
Built into each iteration of 40's Own Keys is also a unique sequencer that can control pitch, velocity, and settings assigned to Macro knobs 1-6. Steps are added in the sequencer by dragging across the window with your mouse, making it extremely quick to add modulated movement.



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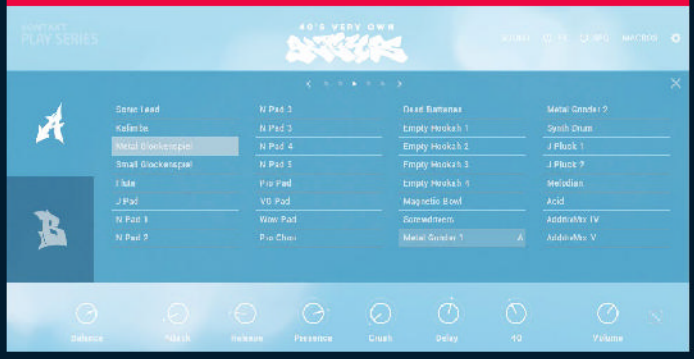
To select what sample is being used for each layer, simply click on the sample name, or just the left and right arrows to scroll through them. Clicking the search icon will bring up a search window where you can see just how many sample sources are available.



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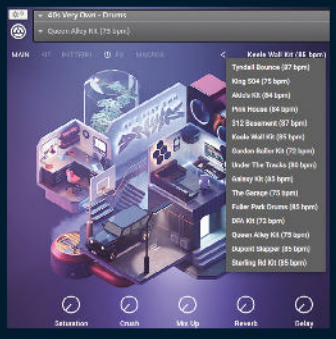
Moving over to 40's Own Drums, you're met with a very similar (and simple interface): a 4 x 4 grid of pads to the right, Macro knobs on the bottom, and tabs to open the Kit editing, Patterns, effects, and Macro editing near the top left. There are only 15 kits to choose from, but each has such carefully selected samples that you can almost hear Drake's voice in your ear as soon as you start going!



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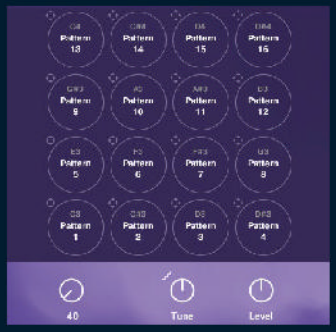
One way to get ideas started using 40's Own Drums is starting with some included preset patterns, then tweaking. To access these, click the Pattern tab and click a pattern to the right. These can also be triggered by notes C3 to D#4. To play these in sync with your DAW, ensure one of the Input Quantization settings is selected. They can also be dragged into sessions as MIDI clips!



FALTYDL

Shapeshifting producer FaltyDL takes a leap into vocal-based indie-rock. **Danny Turner** discusses the step change

© James Hartley

Since the release of his debut album *Love Is A Liability* (2009), the career of FaltyDL's Drew Lustman has been a journey of oblique experimentation. Yet by 2017 he'd begun to tire of the circular pattern of making dance music and gigging, sensing stagnation that year following the release of his introspective LP *Heaven Is For Quitters*. Awaiting inspiration, it was only when he embarked on songwriting sessions with American rapper Mykki Blanco that he finally felt a corner had been turned. Inspired by Blanco's ability to create characters and freestyle vocally, the instrumentalist picked up a microphone for the first time and returned to playing instruments.

On his latest FaltyDL album, *A Nurse To My Patience*, Lustman's diversion into vocal-based indie-rock is fully realised. Bold and ambitious, not only is it a sonic revelation, but his vocals stand bravely alongside Interpol's Paul Banks, Hot Chip's Joe Goddard and avant-garde composer Julianna Barwick.

You did a two-way interview with Squarepusher a few years back. Did anything he said influence you in terms of how you think about music?

"That was right around the time that I opened for Squarepusher in New York and I was lucky to get the opportunity to chat to him for a while. I'd gone so deep into his music that I felt I had a personal connection with him, but what I took away from that conversation was that he's only interested in the use of an effect once he starts dealing with the chaos of real feedback or what happens when you push something to the limit of how you're supposed to. He also truly believes that what he's doing is important. Not self-important, but he feels like a scientist going to work, and I also have those moments when I'm fully into my process."

"I WAS WORKING WITH THESE INCREDIBLE FOLKS LIKE MICHAEL STIPE... I THOUGHT, I CAN'T DO THIS AND THEN GO BACK AND MAKE ANOTHER ELECTRONIC ALBUM"

In 2017 you were on the verge of quitting music. Looking back, what headspace were you in?

"Every time I read back on things I've said it's like, argh, was this really where I was at that point? But I can't deny that it's true. I was doing fewer gigs and was no longer on Ninja Tune so didn't have the support that I'd once had and needed to start looking at things more realistically. I don't know that I'll ever quit making music, but to put an album out every two years, work with other people and support it takes up most of my time, so when I felt like I didn't have that support coming back to me I thought maybe I should do something else to help pay the bills. But that's the ebb and flow of an artist – there's moments where it's flush and others where it's pretty bare. I guess this new album is about stepping outside of my electronic music comfort zone and trying to challenge myself. I'm basically trying to enter the indie realm and it feels like starting afresh again."

Prior to Covid you released the *Three Rooms* EP and a couple of acid house EPs. As good as they were did you feel you were losing direction?

"When I was making all those acid tracks I was listening to Tin Man and a couple of other artists bubbling up with their own take on the acid house scene. Sometimes I do silly things, for example, there are tracks on those acid house EPs that don't even have a bassline. I basically forgot to add an element that's really important to the track, but that can be fun too. Maybe because I didn't go clubbing much I was coming at it from a non-functional club aesthetic – the EPs came from years of listening to stuff on my own with headphones."

Your new album, *A Nurse To My Patience*, is a real detour. How did that take shape?

"When the pandemic shut everything down I wanted to go visit my folks because I hadn't seen my dad for a long time. I drove over there and hung outside, but he said while you're here why not come round back and grab some of your instruments from the basement? That was an excellent idea because my current studio is three times the size of my old one. I grabbed three bass guitars, one electric, my bass rig, two acoustic guitars and my flute and suddenly had all these new things to re-familiarise myself with. I played and played, got really comfortable on guitar again and got my calluses back. That experience informed the palette change, but I was also listening to all sorts of stuff like King Crimson and Interpol's new supergroup, Muzz."

Did you always want to make an album that had a more rock-oriented feel?

"Yes, but then there's also tunes on there like *Zoo Jarre* that have a lot of instrumentation yet still sound very produced and a little bit electronic. Another big thing that informed the album was the work I was doing with Mykki Blanco and how we literally invited other voices and ideas into the room. We were making music that adhered to some kind of pop structure but suddenly I was working with all these incredible folks like Michael Stipe, ANOHNI, Devendra Banhart and Kelsey Lu. I just thought, I can't do this and then go back and make another electronic album – I wanna sing, play instruments and make my mark in this space too."

Did you get to work with Michael Stipe in person?

"That was an early pandemic one so there was a lot of remote work going on, but he was so helpful. The bigger an artist gets the more helpful they become and Michael was so available on email sending ideas and other gems of wisdom back and forth. When a vocal lands in from someone like that, you wonder if you can ask them to try something different, but he was always willing to go back in and do another take."

Presumably, artists like Michael got where they are today by being fully invested in everything they do?

"Absolutely, and then you also realise that you're part of their career in that sense, which is almost overwhelming. I had a similar experience with Paul Banks of Interpol. That was an early pandemic reach-out via management and about two weeks later Paul's vocals landed in my inbox with an email saying, 'I really loved your music'. Following that, we went back and forth across 30 emails tweaking things to get the track to the right place."

The last time we spoke you said that you found it hard to relate to lyrical music because it's too literal, yet here you are singing on your own album for the first time?
"I love that you brought that up because boy am I glad that we're allowed to change, grow and evolve. It's amazing that I remember feeling that way, but I justified it by saying I needed to have some poetry in my music. Being a producer first and foremost, at first the process was about how I could produce my voice to sound good. That meant focusing on my sitting position, the placement of my tongue in my mouth, the microphone and how I technically deal with all of that. With the poetry, I realised I could tap into this thing where I could flow freely and be very connected to something without forcing it and have the confidence to write down whatever I was feeling without having any judgment over it."

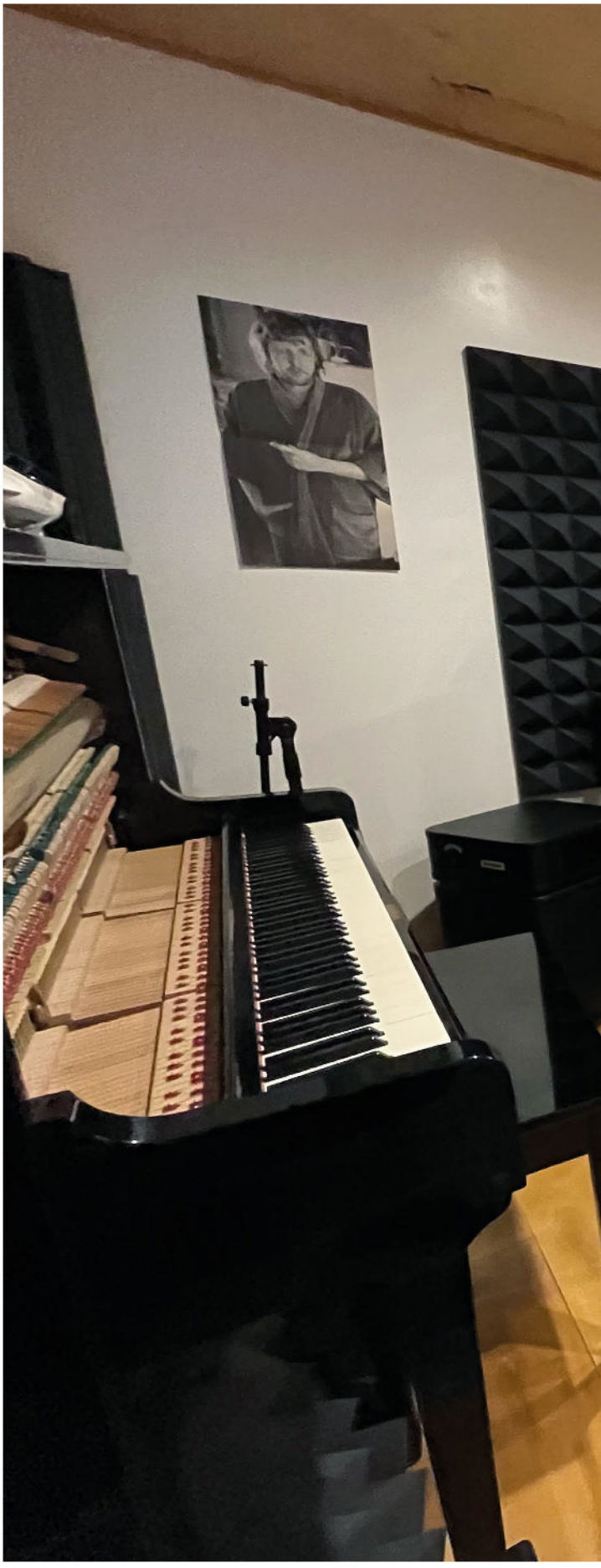
Was it all plain sailing?
"There are tracks I made during that period that I won't release because they make me cringe [*laughs*], but it was exciting because I was working with microphones a lot more and that's been the most interesting thing that I've done in music for years. When the direct interface is a microphone, this whole new world opens up regarding how to process that and it's way different to working in the box and staring at my DAW."

Was it also liberating to allow the instrumental side of your music to take a slight back seat?
"I really wanted the single to lead with a guitar-focused track that I was doing the lead vocal on. If I'd led with a track like *Zoo Jarre*, you might be able to draw more of a connection to my older music via the sensibility of its electronic palette, but I wanted to put this new side forward and not hide behind anything. I'm relieved now that I've done that and excited that it went okay."

Not only are you singing on the album, but you're also inviting comparison by pitting yourself alongside Paul Banks and Joe Goddard. That must require confidence…
"When I make music I always say to myself that I'll decide later on whether anyone, including even my girlfriend, needs to hear this. I've got tunes that are hilarious and embarrassing but I had to get them out of my head so I could make the next thing. I guess the confidence came from working with Mykki and seeing someone come into a studio, create characters and just flow freely, singing to a click or sometimes even nothing. To me, that's real confidence because there's no fear of failure."

It doesn't sound like fear of failure is a stumbling block for you either?
"It's weird because I'm terrified of failing but at the same time, I'm not. If I get really afraid I'll just put it out there and hide under the covers on my couch or turn off my phone. I don't know what we're doing if we're not challenging ourselves, but at the same time the album's been out for two months and I'm still doing A/B comparisons between Joe and Paul's vocals and mine and thinking, 'Is this good enough?'"

Did any unexpected influences come through on this record? *A Vow*, for example, sounds very Radiohead…
"The whole chord progression definitely feels Radiohead to me. That song started on the electric bass with me doing a double stop, which is playing two notes at once. When you do that you can't get away with a lot because the low end sounds quite muddy, but I found an eighth chord progression that repeats itself throughout and it turned out moody with lots of



diminished chords. I also wanted to get really up close with the mic and talk in a very quiet tone to describe my inner truth and build up those harmonies."

What do the lyrics speak to?

"The lyrics talk about the concept of getting older, not being the centre of attention and having to live with that reality. If you get a good solid decade in this industry that's incredible, but after that you usually have to build your own playground to play in and I'm talking about that on *A Vow*, for sure."

Having worked in the box for so long, how did you find the process of recording live instrumentation?

"Introducing a microphone created this whole new element of how I needed to record things. I got a Neumann TLM 49, which is a big beautiful condenser mic that's good for vocals and instrumentation and put it on a podcast arm. I can stand in front of it and do vocals, drag it across my lap and play guitar in front of my computer or swing it around to my piano on the other side of the room. I also knew I could build the sound up layer by layer. On *Four Horses*, the acoustic parts sound like they could be played by one proficient person, but there's about ten parts in there. It took a lot of trial and error on placement, how to record and how to treat sounds in-the-box using a Waves API 2500 compressor and 560 EQ plugin for send effects like reverb and slap back."

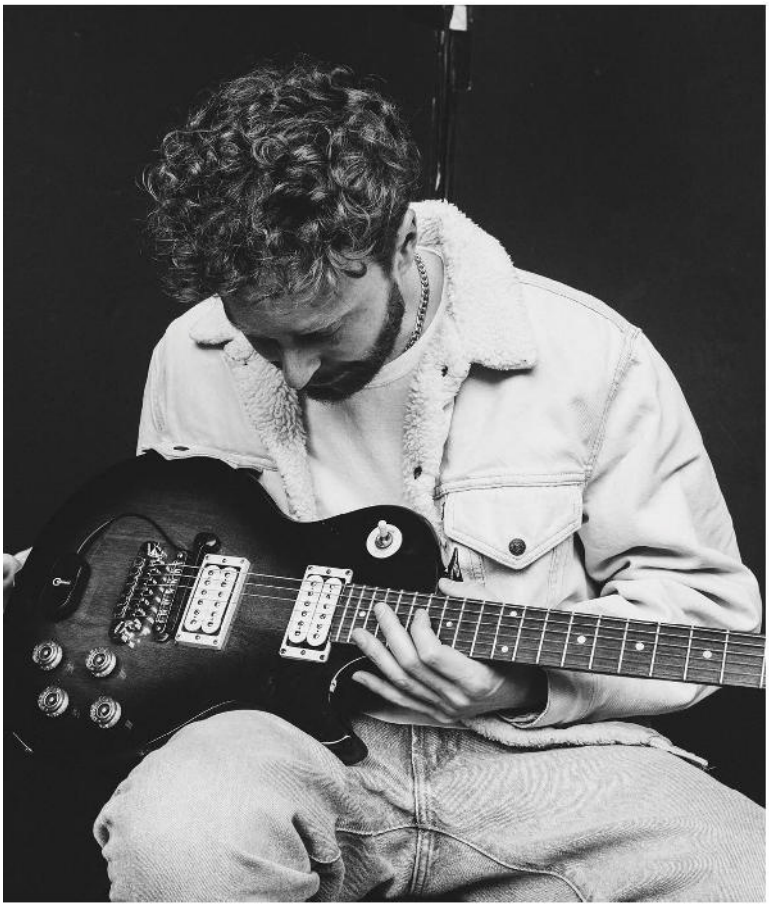
What other recording techniques did you use?

"I recorded every line twice and as similarly as possible so I could pan them hard left and right to create the Haas Effect, which is when you manipulate something by dragging the same audio clip but slightly longer. Essentially, you get this huge stereo sound that almost sounds like one instrument but is slightly off and super stereo. I used that technique on all the acoustic guitars, a lot of electric guitars and my vocals. But it was really helpful to get James Rand, who mixed all the Mykki Blanco stuff, to work on two thirds of the album. I sent him the stems and he'd help to set them in the right place. That's when the record started to sound really good."

Some of the guitar is quite distorted. Were you driving them through pedals?

"The guitars went through three different preamps to warm things up. I used a Gibson GK-55, which had a limited run of 2,000 in the early '80s and is made up of leftover parts from the Les Paul factory. That went into an Eden World Tour 800 bass head powered by a Furman power conditioner that snaked across the floor into a DiCosimo stomp box, which emulates the Acoustica 360 bass preamplifier used by Jaco Pastorius. The final part of the chain is a volume pedal made by Lehle, which sounds beautiful. Most volume pedals use a slider inside but this uses magnets, so the way the volume swells feels really smooth and spooky. That finally goes into the back of an Apogee Duet and into the computer. Sometimes I used the fuzz on the preamp but I also used all sorts of plugins for distortion."

"WHEN I MAKE MUSIC I ALWAYS SAY TO MYSELF THAT I'LL DECIDE LATER ON WHETHER ANYONE, INCLUDING EVEN MY GIRLFRIEND, NEEDS TO HEAR THIS"



Does the album feature live bass and drums?

"I used a metal drummer called Hayden Christensen who tours in a big rock band. He has a drum setup in his house out in Joshua Tree; he played all of my programmed drums live, and then I treated those like samples. I just thought that if I'm going to use all of these live instruments I might as well make the whole album sound that way, but then there's also a track like *A Vow* that's mostly based on Roland CR-78 drum samples."

In terms of synth sounds, did you have to change your sound palette to suit the album's more traditional rock sound?

"I really got into the Arturia VSTs that model the Mellotron, Farfisa organ and Yamaha CS-80 synth. I'd also been listening to a lot of The Beatles over the pandemic and I wanted those *Strawberry Fields* flutes because they fitted the psychedelic palette of some of the stuff I was working on. Basically, every aspect of my music making has been upgraded over the past six years and it's all coming out now." FM

WANT TO KNOW MORE?

A Nurse To My Patience is out 11 November on Blueberry Records. For more info, visit **faltydl.bandcamp.com**

GEORGE FITZGERALD

Hamish Mackintosh learns how the UK producer mined the cosmos for the lush electronica of *Stellar Drifting*

Harnessing the stars to create celestial wavetables, George FitzGerald's brilliant new offering, *Stellar Drifting*, is the fruit of his new studio, a lockdown obsession with the Hubble Telescope and a desire to turn photographs of space into synthesised sound. *Stellar Drifting* sees FitzGerald enlist the vocal talents of labelmate Panda Bear, Derry singer/songwriter SOAK, and London Grammar who return the favour after FitzGerald contributed to their 2021 album, *Californian Soil*.

Following a move to his new studio in Bermondsey, FitzGerald downsized some of his analogue synth collection and dove deeper into his soft synth arsenal to brilliant effect on standout tracks, *Passed Tense* (with the aforementioned Panda Bear) and the otherworldly, *Ultraviolet*. Whilst exploring these new sonic territories, FitzGerald has retained the genre-straddling skill that made previous albums, *Fading Love* and 2018's *All That Must Be*, such entrancing and essential components of the electronic music firmament.

Stellar Drifting has an intriguing back story of you wanting to turn space into sound, doesn't it?

"It's something I've been toying with for three or four years, then I got more interested in it during the pandemic when we all had a lot more time on our hands. Simultaneously in the studio I had this thing where I wanted to switch up some of the sound sources or just make a break from just coming into the studio and switching on the same old synthesisers. At the same time, on a break in the studio, I'd be going through open-source sounds on the NASA archive and similar sites and making little percussive things from them. Then I realised you could take .jpg and .png files and drop them into wavetable synthesisers and make oscillators out of the pictures. I started messing around with some of the shots from the Hubble Telescope, loading them in and seeing what came out."

Did you get instant results?

"Obviously, it wasn't like a complete eureka moment where everything sounded amazing as a lot of it sounded crap! It was a fun exercise though and it did add quite a bit sonically to the record. I ended up using a lot of that stuff as textures over slightly more orthodox sounds. So, that's where the background to the space theme comes from."

Wavetable and granular synthesis have really opened a door to new sonic worlds, haven't they?

"It's incredible really, although it's not a particularly new development now as that technology has been around for a while. I really feel that between the recording of the last record and this one, for me, the exciting differences have been digital or things that, if they're not in the box then they're not standard old analogue subtractive synthesisers that were the basis for a lot of my previous two records."

So what synths were you putting the images into?

"I was using a lot of Serum and a lot of Wave in Ableton. It was mainly those two simply because I had a Max for Live patch to convert the images into wavetables then on Serum you can actually just drag and drop it onto the oscillator window, which is incredible. I'd go as far as to say that Serum has a decent claim to be one of the best synthesisers ever made, hardware or software! It is really scary how deep you can go with it and I'm pretty certain that I've only really scratched the surface."

The soft synths continue to get more powerful and versatile, don't they?

"For my first album, I gave myself a rule that I wouldn't have anything digital… nothing in the computer, no sampling. That was fun as a creative thing, but it did mean that I'd slept on some of these newer soft synths and the quantum leap some of them had made in the intervening period."

Does imposing certain creative rules on yourself help your musical process?

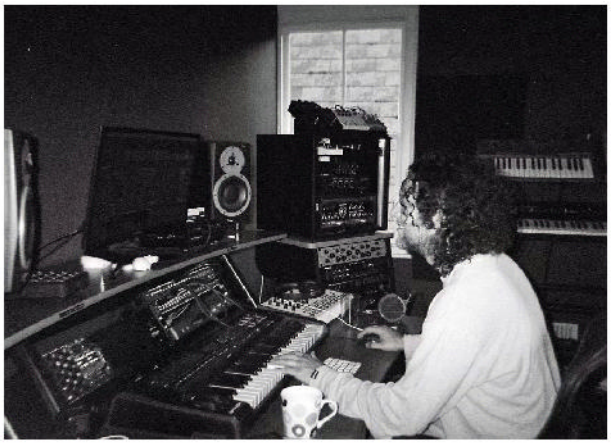
"Absolutely. With this one it was a lot about deconstructing the audio. What I mean by that is that quite often on this new album even if you're hearing an arpeggio or something, it's usually gone through a couple of stages more than it might have done on the previous records. So, it might have been something different altogether previously and then I made an arpeggio out of it, then put it into a granular synth.

"A better example would be that a lot of the textures might be various instruments that were recorded in previous projects, like a lead line or something, put into a granular and made into a texture. There wasn't nearly as much of that re-sampling and re-interpretation happening on the previous records… It was a bit more direct, from instrument to recording. So, yeah, having ideas and some rules is the best way to do it because there are just so many options now with all the instruments and plugins there are now. I find it's a way to navigate your way through all of that."

What's in your current studio setup?

"I've just moved to a different studio than the one I made *Stellar Drifting* in but it's all the same equipment. I'd been in the last studio for a long time, and it was this dark, windowless place on the Old Kent Road. So, it's based around Ableton and various bits of hardware. If anything, I've tried to pare things down a little from the last couple of records… one of the big differences is that I got rid of a lot of analogue poly synths so I could focus on a wall of modular synthesis.

"A lot of the more individual sounding things on the new album came from the modular and I've got quite a big rack of Cwejman modules that sound amazing and made me basically want to sell everything else! The core of the studio would be my SH-101, I have a JoMox drum machine and a load of outboard effects. So, pretty much everything other than the space-generated sounds you hear on the album is coming out of those bits of gear."



You mentioned Ableton… What is it about Live you like?

"When I was starting out somebody gave me a copy of Fruity Loops but I didn't really click with music production until I got my first copy of Ableton. Prior to that I'd really wanted to find it enjoyable but didn't. Like a lot of people, I really just like the way that Ableton's set up, especially now that it's broadened into being a one-stop production suite. I've worked on it for over ten years now and it's not something I'm looking to change."

There's a real community built up around Max for Live.

"Yeah, the Max for Live stuff makes it really powerful… Those patches I mentioned earlier for the space photos but also being able to make control surfaces for hardware synths. I'm on that site a lot trawling for new things."

What would you like to see the next generation of synthesis allowing you to do?

"That's a really interesting question. I don't think anyone has cracked granular synthesis properly yet. A few people have given it a good go, but I think granular is something that lends itself better to being a software rather than a hardware synth. I use three or four different granular synths, but I don't think that anyone has totally nailed it yet and managed to put everything in one place. Interestingly it doesn't seem to be a very fashionable form of synthesis and I don't know why that is. I would love Xfer to add a granular thing to Serum or somebody to execute granular synthesis on a level with the bigger, well-known synths like Serum or Massive… I would use that a lot!"

Any new additions to your studio?

"I did buy a tape machine recently, which is a bit random. It's a Tascam Porta Ministudio 07 that I got for a couple of hundred quid off eBay. One of the things I try and do is to combine having digital sound sources in the box with finding ways to scuff them up. Basically, to give them some character. Running things through tape machines is quite a tried and tested way of doing that but it really does add something. I've got an RE-201 Space Echo and that gets a lot of use too, often not for the delays or the spring reverb but just to hit the tape on it and the preamp."

How did you typically start putting a track together for *Stellar Drifting*?

"It's difficult to say, really as, a lot of these tracks, the way I write is to work on ideas to a certain point

then if I hit a mental block, I park them. So, I end up kind of throwing tracks together at a later stage. So, I'd say most of these tracks are amalgamations of different projects and that's one of the ways I try to build up density and complexity in records. Quite often I'll deliberately write in a certain key or BPM range for a couple of weeks. So, there's not really a way that I write where I have one idea that I work on from start to finish. It's more lots of different points throw together."

Any artists that inspire you?

"I try not to listen too closely to things that might be similar genre-wise to my stuff; not through arrogance, it's just you could end up driving yourself mad and also, subconsciously, melodies can leak into your head. I got given some good advice that when you go into album writing mode it's good to surround yourself with music you like that's stood the test of time. I always have a running playlist of stuff like Portishead, DJ Shadow, Radiohead… I'm a kid of the '90s! Listening to those kinds of things is very grounding, though I'm not frantically listening to other people for inspiration specifically."

Is there one piece of gear you couldn't be without?

"Yeah, my SH-101. It's a really simple synthesiser but it's one of these ones that amaze you by how many different sounds you can get out of it. I'm not a big menu diver on synths so I love a synthesiser where you know within 30 seconds if you'll be able to get the sounds you're after from it. I love that with the 101 you can know so quickly whether it's a runner or not… and more often than not it is. It also has a sound that sits well in mixes. I find Moogs sound amazing on their own but they're quite hard to place within a mix as they dwarf everything else by comparison. Roland synths have always felt a little more polite in that they don't take over a track." FM

WANT TO KNOW MORE?

Stellar Drifting is out now on Domino. For tour dates and the latest release info visit **george-fitzgerald.com**

GEORGE'S TOP THREE PRODUCTION TIPS

Get organised

1 **"It sounds like a boring one but collating and ordering all your projects means that nothing is ever wasted or lost. Especially so in Ableton as you can very easily access the individual channels of the projects you've been working on and pull out sounds from different projects. It's a good discipline that very quickly bears a lot of fruit. Just file your ideas by BPM or key and keep them in a folder so you can come back to them.**

"A lot of people listen to electronic music that's quite dense and think people sat down and wrote it in one go. They didn't! They're sampling themselves, which is what I do a lot. You can then do so many things to it… you can take a bounce of the entire beat and timestretch it, play with the algorithms in Ableton or do whatever."

Check your mixes in mono

2 **"There's often a lot of stereo stuff going on in my music and it's important for me to check that things don't disappear in mono. So, I've always got a mono plugin on the output and I'm flipping between the stereo on mono. With all the incredible mid-side and stereo effects that you have now you need to be really careful to not create a huge mid-range mush that all phases and disappears if you switch it onto mono. Playing those relationships off against each other is very important, making sure some of your sources are mono and are going straight to the middle.**

"One of the best tips I've learned about mixing is about having contrast. You can have everything as wide as you like but if everything in the mix is wide then the actual wide stuff won't sound wide. I know that sounds really obvious, but you have to think about space in that sense. I used to think you had to stick everything into some kind of reverb, or it would sound rubbish but that isn't true. Keeping certain elements dry in your mix creates a contrast with the things you're making really wet."

Pitchshift the master bus

3 **"One of the problems that everyone runs into when they're working on a project is that you can get bored listening to the same thing over and over and it gets a bit stale. It can really help to put a pitching plugin on the output and just pitch it up two semitones for half an hour and work on it there. Just pitch it somewhere else – I can't tell you how different it makes the energy when you, say, pitch it up three semitones, start writing some chords and melodies up there then pitch it back down again. It just means that your brain and your ear don't get fatigued as you start hearing it a different way. Sometimes, you might keep it there as it actually sounds better."**

FutureMusic Platinum Award

Oberheim OB-X8

£4,799

It's arrived! Could the new Oberheim OB-X8 be a modern classic? **Bruce Aisher** takes a look

CONTACT **WHO:** Oberheim **WEB:** www.oberheim.com **KEY FEATURES** 8-voice polyphony with two VCOs per voice. SEM-lineage + Curtis filter options. Modelled envelope responses match vintage OB models. 61-key Fatar velocity- and touch-sensitive keyboard. Bi-timbral for splits and doubles. 400+ factory programs, including full set of factory sounds for the OB-X, OB-SX, OB-Xa, and OB-8. High-res OLED display. Classic Oberheim Pitch and Mod levers

THE PROS & CONS

+

It does an amazing job of combining the design elements of three classic synths into one new synth

There are a lot more programming options available beyond the front panel controls

It can create that classic-era Oberheim sound with ease, but also offers more flexibility than its predecessors

–

None of this comes cheap!

Some Page 2 features might have benefitted from dedicated front-panel controls

No dedicated patch compare button

The day has finally arrived – a new Oberheim synthesiser is here. And it's not just any old synth with the Oberheim name stuck on – it's the real deal. In a similar manner to Dave Smith's journey back to using the Sequential name, Tom Oberheim can again create synths under his own name. Interestingly, there is a little more that connects these two almost parallel events than one might first suspect. Before he died Dave Smith made the legendary Prophet-5 live again in the shape of the Sequential Prophet-5 Rev 4. This took elements of circuit design from the two main original production versions (Rev 2 and Rev 3) and recreated them using modern production processes. Core to this was converting the original circuits to make use of surface mount components rather than their larger, and more unwieldy predecessors. In turn, this allowed the production of a more diminutive desktop unit, and the ability to buy an expanded 10-voice version. Besides additional memories, expanded MIDI spec, split/layering and the addition of a Vintage knob, most of the core aspects of the original's analogue signal path were the same – and it sounded great.

It is therefore not surprising to find that when Tom Oberheim was exploring the possibility of bringing some of his legacy instruments back to life, Sequential were an intrinsic part of the process. They had after all collaborated on the Sequential OB-6 – a fine synth, but not quite the resurrection of the classic '70/'80s Oberheim sound some were craving.

This brings us to the OB-X8. There was a lot of excitement when it was announced, not least because rather than being just another potentially excellent synthesiser, it specifically focused on three revered keyboards from the past – the OB-X, OB-Xa and OB-8. Before diving in with specifics, it's worth pointing out that the OB-X8 has a fully analogue signal path, but unlike its predecessors the envelopes and other aspects of the modulation and control of each voice are done digitally. This allows for some interesting possibilities.

THE ALTERNATIVES

Sonic Projects OP-X Pro-II $179
A highly-regarded virtual analogue synth plugin that does a great job of nailing the Oberheim vibe – and with enough flexibility to allow it to cover other analogue synths
sonicprojects.ch

Oberheim OB-X (used) £10k+
An original OB-X will set you back somewhere in the region of £10k, but don't forget to set aside some cash for repairs
ebay.co.uk

Sequential Prophet-5 £3,199
The original OB competitor resurrected. Whilst there are some overlaps, and it is not as complex, some prefer the tone of the Prophet-5 – another classic
sequential.com

All three versions of the Oberheims mentioned above follow a broadly similar design in terms of overall approach, and this is used as a template for the OB-X8. So, we have an eight-voice polyphonic synth, with each voice consisting of two VCOs capable of generating sawtooth, square/pulse and triangle waveshapes. A noise source is also present, with the combined signal routed to a filter section (VCF) and then amp (VCA). The VCF and VCA each get their own four-stage (ADSR) envelope. A dedicated LFO with six selectable waveshape options is routed to two separate modulation paths each with their own adjustable depth that is then routed to three hard-wired sources. The first handles the pitch of OSC1 and OSC2 as well as filter cutoff. The second deals with pulse width modulation and volume. Although the destinations can be enabled/disabled individually, this is clearly not as flexible as a more modern modulation matrix. However, it remains true to the spirit of the originals, and the limited options could arguably make editing choices quicker and easier.

To the left of the keyboard additional control comes in the form of two control levers and a second LFO dedicated to vibrato (pitch modulation). Once again the levers are limited to specific functions (pitchbend and mod amount).

If when glancing at the front panel the modulation options look a little sparse when compared to modern synths you will be pleased to know about the Page 2 button. This feature first saw the light of day on the OB-8 and allowed front panel controls to access a further set of modulation-related parameters. Later versions of the OB-8 had these sub-functions noted beneath each knob. The OB-X8 forgoes this and instead employs a Page 2 menu accessible via the small OLED display (although knobs can be used for some functions, but you'll have to memorise what each one does).

The OB-X8 does not exactly replicate every element of the earlier OB synths. Instead, Oberheim have taken important elements from all of them and, if necessary, provided different options to cater for the

> The patch banks containing original presets from the OB synths sound so authentic

SOME OB HISTORY

The classic era of Oberheim synth design ran from 1975 to 1985. This began with the monophonic Synthesizer Expander Module (SEM) that would form the basis of the hefty 2-Voice, 4-Voice and 8-Voice synthesisers. The latter two could also make use of an optional programmer for storing settings, which laid the groundwork for the OB-X, a direct competitor to the Prophet-5. This was followed by the OB-Xa which replaced the discrete VCO and VCF stages of the OB-X with more cost-effective chip-based designs (from Curtis). Further streamlining tweaks led to the OB-8. By the mid-'80s the Xpander and Matrix synths expanded the available control options by employing computer-controlled and digitally-generated modulation sections. In an era where digital synths were taking over, however, these are a last hurrah and Oberheim were declared bankrupt and eventually sold to Gibson.

Just over 30 years later Gibson gave the Oberheim trademark back to Tom Oberheim. In a final twist, it was Oberheim's early competitor Sequential (under the helm of the late Dave Smith) who helped develop the OB-X8 we are looking at today.

specific approach of each. This means that the VCO is based around the discrete design of the OB-X (and even earlier SEM) rather than the later Curtis chip-based designs, but with a Page 2 option switch the Square Mode can match that in the OB-8. Page 2 also allows you to adjust VCO1/2 and noise levels individually, rather than the limited ON/HALF/OFF choice of the past.

Cross-modulation (great for clangorous tones), which was dropped after the OB-X, makes a comeback and sits alongside oscillator sync and filter envelope pitch modulation (from the OB-Xa and OB-8).

Perhaps the most obvious differences between the earlier synths lay in their filter design. Unlike the Prophet-5 that changed the chips employed for its filter between the Rev 2 and 3, but with both still using a 24dB/octave (4-pole) low-pass design, the OB-X8 provides a total of six options covering a 4-pole low-pass and 2-pole low, high, band and notch designs (the later three from the original Oberheim SEM module).

Another difference lay in the envelopes, where the OB-8 had noticeably more linear contours compared to the earlier OBs. This can be switched in Page 2 alongside the different approaches to LFO manifested as changes to the speed and depth range as well as shapes and phase of the modulation.

It should be clear that Oberheim have paid a lot of attention to trying to allow the OB-X8 to recreate sounds from the full panoply of OB synths (and the SEM). It's testament to their effort that the various patch banks containing original presets from the OB-X, OB-SX (a preset-only synth) , OB-Xa, and OB-8 sound so authentic – but let's save that for a bit later.

The Page 2 features discussed so far only scratch the surface of the additional tweaking that can be done on the OB-X8. Delve further and there are options for adjusting voice detune (great for adding extra vintage vibe or fattening unison mode patches), a range of voice panning modes, Vibrato LFO Wave selection, LFO depth envelopes, and a bunch of portamento modes and options. There are also sections dedicated to split and double (layered) mode parameters. This begs the question as to whether there are parameters here that might have been better placed on the front panel with their own controls. The answer will depend on what type of user you are, but I can't help feeling that a few additional buttons and a larger (or separate secondary) screen for clearer parameter editing would have brought the OB-X8 more fully into the 21st century – and without compromising the vintage aesthetic. Speaking as someone who owned a vintage OB-8, the extended parameter editing is much better here, but I think it could have been even better.

Unlike its much older predecessors the OB-X8 has the ability to stay well-behaved in terms of differences between each voice, and like the recent Prophet-5 Rev 4 it has the ability to push back against this with a dedicate Vintage knob that dials in voice-to-voice variability of envelopes, oscillators and filters. In this control section you will also find nods to 'modern' features such as velocity sensitivity and aftertouch which are relayed from the keyboard (which feels very nice to play, unlike my clunky OB-8!). I wonder if Oberheim will add other contemporary features such as LFO clock sync? There is potential for expanding functions via a firmware update.

The OB-X8 is not without its annoyances (for example, there's no dedicated patch comparison button), however it is a lovely synth to use and play. I found it easy to programme all the sounds I used to create on my OB-8 and it has that vintage Oberheim sound in abundance. There are already calls for 16-voice and desktop versions, and I know some (like me) would love to see one with the more '80s inclined horizontal blue stripe aesthetic of the OB-Xa and OB-8.

Clearly, at this price point it is far from a casual purchase, and these days there are many great-sounding virtual instruments to choose from – but will they inspire you in the same way? Another factor is reliability. The discrete nature of the OB-X makes it a more tricky beast to look after if you want to own a real vintage synth. And the OB-X8 covers a wider range of sonic territory, and manages to be both modern and 'vintage'.

This is a lovely and engaging analogue synth, and a very welcome return for Oberheim. FM

PAGE 2: Like the OB-8 this provides access to a host of additional modulation and control options. The OB-X8 adds many of its own

FILTERS: The OB-X8 has six different filter types based on topologies across the original OB and SEM range

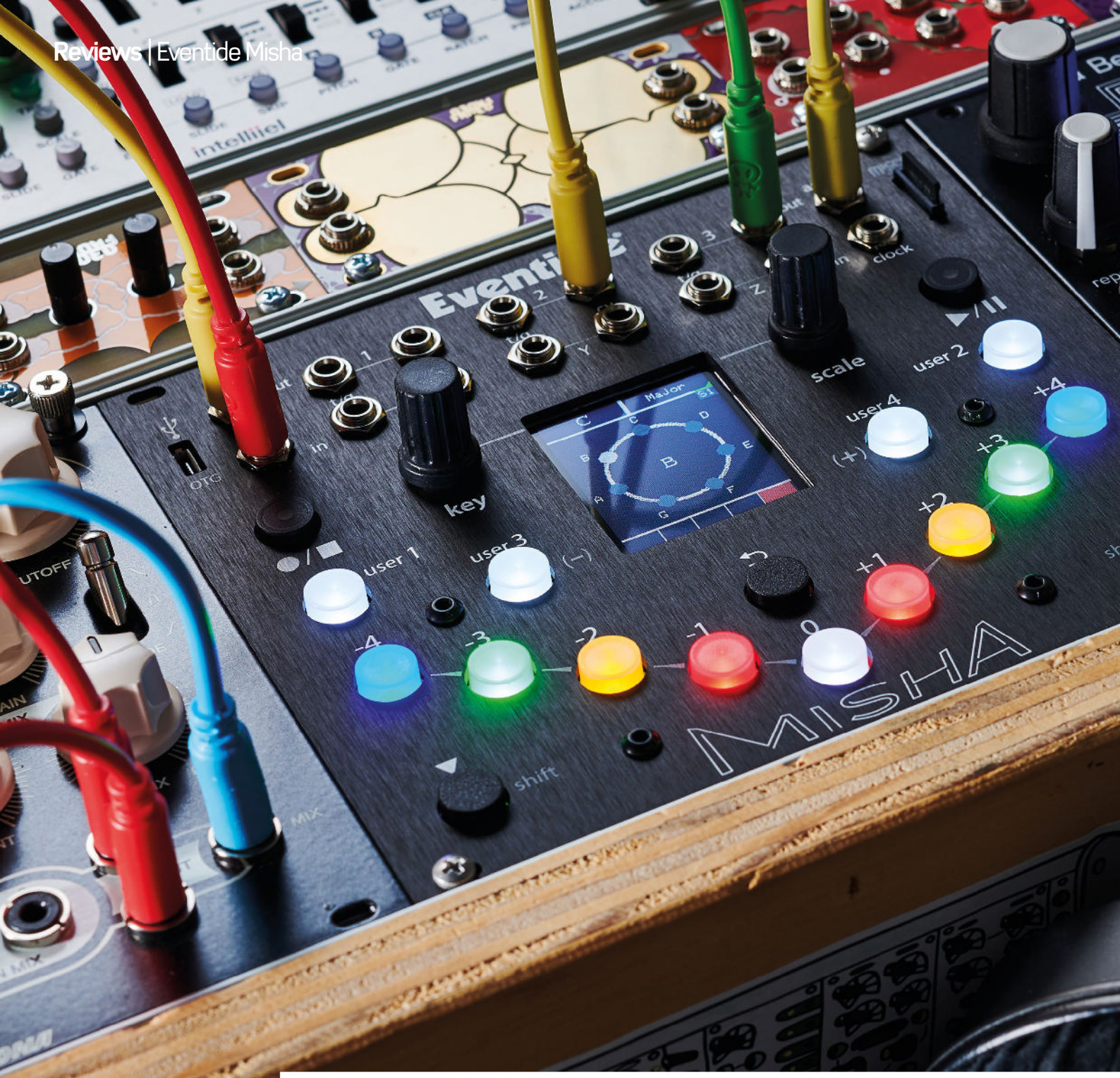
VOICE CONTROL: The vintage knob allows you to dial in greater voice-to-voice variability for a more 'authentic' vintage sound

KEY FEATURES: The quality Fatar-designed keybed adds velocity and aftertouch control for amplitude and filter cutoff

FM VERDICT

9.5

This is a beautiful synth and destined to be a classic in its own right. But there's no escaping the fact that it won't be affordable for many



Eventide Misha £552

Rob Redman takes Eventide's new module for a spin and discovers Misha is an oddity, in the best possible way...

CONTACT **WHO:** Eventide **WEB:** eventideaudio.com **KEY FEATURES** Interval-based performance instrument and sequencer, 100 built-in scales, Polyphony via CV or MIDI, External control via MIDI or QWERTY keyboard

THE PROS & CONS

+

Fantastic for jamming and experimenting

Flexible CV patch points

Lovely screen

–

Muscle memory for performance can take time

No USB compatibility for controllers

No velocity sensitivity on the playable buttons

Recent times have seen a number of sequencers hit the market that aim to encourage experimentation, such as Intellijel's Metropolix. Eventide have joined this area of modular fun with Misha and they have taken a very different approach, with an intervalic method of generating pitch changes.

First up the module itself. The 28hp module is large but shallow at under two centimetres, so will fit in most skiff style rigs. That overall use of horizontal pitch should be forgiven, or praised, as it does make the performance aspect of Misha more comfortable – there is just the right amount of room to not feel cramped, whilst the controls aren't so spaced out that you have to stretch to reach.

The controls are well laid out and are dominated by the V-shaped array of buttons used for interval selection. These are illuminated, showing different states of the module and, as with the rest of Misha, are clearly labelled. Above these is a very bright and clear display, which is similarly well laid out, with note, scale and octave information taking the most space, although this changes when accessing menus and options. As much as button-per-function is nice, the balance between physical format and capability is good here and, although it will take a little learning to master all the button combos, it is worth the investment as the playable experience is so good.

The screen is bookended by two rotary controllers, used for accessing various menu options, but most commonly for accessing the key and scale for the current patch. Below this is a bank of four buttons. These have preset functions but are all user definable. Record/Stop and Play/Pause buttons, along with an up and down shift button, finish off the physical interactions.

Misha does feature an onboard VCO but for many users, getting pitch information out of Misha and into their chosen voices will be the order of the day. Eventide have been pretty generous here, with three CV outs, meaning this can act as a polyphonic sequencer. Although there is an internal clock Misha can be externally clocked via CV or MIDI and features a nicely implemented clock divider.

Other ports include a micro USB, unfortunately only used for installing firmware updates. It would have been great to see that as an option for connecting a controller keyboard, as the playable buttons aren't velocity sensitive. A micro SD card is included for storing and loading presets and MIDI is on offer via a pair of mini TRS jacks, one each for in and out, so no through option here, although that isn't too big a loss. When using the onboard voice, you can output via a stereo pair of outputs, then on to the rest of your rig for filtering and modulations, etc.

Which brings us on to the meat of Misha. What is it like in use? Well, there's a lot to cover but the headline is fun… but with caveats. Simply patched up to output audio Misha, as a playable device, is a fantastic idea that caters to those with and without much music theory knowledge.

The 'keyboard' is a set of buttons that don't equate to musical notes but to intervals. At the point of the V array is a '0' button which will replay the last note, then there are two sets of four buttons that play increasingly more or less intervals, so the first button to the right plays one interval higher, the second plays two intervals, and so on. Note values are dictated

THE ALTERNATIVES

Intellijel Metropolix £684

Intellijel's wonderful performance sequencer is a fantastic option for generative music and jamming, with a bunch of tools for evolving and morphing a sequence

intellijel.com

Erica Synths Black Sequencer £470

While more of a traditional sequencer, Erica Synths have made a killer unit, with four tracks of CV and gate, plus the magic randomiser button, helping to keep this playful and unexpected

ericasynths.lv

not by these buttons but by the currently selected key and scale, accessed by the rotary knobs. There are more scales included than will ever realistically be exhausted, meaning you'll be good to go even if you want to explore microtonal territories, as well as your more commonly used scales. You can access different musical modes too. The buttons are illuminated, aiding in learning the mode Misha is in, along with pinning down muscle memory. For those with less theory knowledge playing Misha is probably more intuitive, but for those with some, or who play keyboards, it might come as a little struggle. The practice takes a little getting used to, as playing one button up, then repeating, will cause two different notes to play, in two interval steps. Once you're familiar with it though, Misha becomes an incredible tool for experimenting and jamming. Much like Metropolix, the key to success here is in creating happy accidents while retaining a level of control.

Setting a key and scale and interacting with the intervals rather than the notes is a wild ride but one which remains in sync with the rest of your track (should you have one) and playing it as an instrument is quite the experience. Of course there is also a chord mode, with three notes output via CV or MIDI. The chord type can be accessed via the menus easily and intuitively but it's not possible to play a seventh, followed by a third, which does limit the possibilities.

The sequencer is yet another way to be explorative in your musical journey. Misha takes a detour from the norm here too. Rather than laying down a series of notes, you hit record, then use the interval buttons to play a sequence. Misha will stop recording and begin playback when the number of notes in the scale is reached.

It has some limitations however, as you can't currently run a sequence that repeats a note, but limitations can feed creativity, which is what Misha is all about. It's a different way of thinking and one that inspires the user to think creatively, as should be expected of a device that lets you plug in a QWERTY keyboard to play it. Yes, that's right. You can do that.

The MIDI implementation is pretty good too, so for those who prefer the good old black and whites you can plug in and play that way too. That said it isn't the same as playing piano. Oh no. That just wouldn't be the Misha way of doing things. If using a controller keyboard you'll still be inputting intervals, rather than notes. Misha will just take the nearest interval to the note pressed. One benefit of doing this is that you can take advantage of other features of the controller used, such as velocity and trigger outputs.

There's more on offer than can be covered in this space but on the whole Misha is a jamming and experimentation dream. It forces different thinking and playing approaches that, while they can be learned, encourage a different type of creativity. FM

INTERVALS?

An interval is the name for the number of notes moved along a scale. For example in the key of C, you have C, D, E, F, G, A and B. On Misha if you start with a C then hit the plus two button the next note played would be an E. If you hit the minus one button you get a B. This is core to the playability of this module and is a wonderfully different approach to creating melodies and progressions.

PLAY NICE: Misha is wide for good playability with an elegant user interface. It's also shallow, so it will fit in most rigs

THE LIGHT STUFF: The main buttons illuminate differently depending on the mode currently selected, but they aren't velocity sensitive

CLEAR VIEW: The bright display is clearly laid out and makes it easy to know where you are in any given menu, or key, scale and octave

TOP STUFF: All the ports and patch points are gathered at the top of the module, keeping them out of the way for performance use

FM VERDICT

8.0

Misha is a perfect tool for generative music, jam sessions and fun explorations into new musical territories

Scarlett

NEVER STOP CREATING

Sound better than ever. Get studio quality sound with the interfaces that make more records than any other.

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Empress Effects Zoia Euroburo from £649

Empress Effects have adapted their Zoia pedal for use with modular gear. **Bruce Aisher** gets patching

CONTACT **WHO:** Empress Effects **WEB:** empresseffects.com **KEY FEATURES** **I/O:** 4 CV Input and 4 Output Jacks, Stereo 3.5mm audio I/O, MIDI 1/8" in/out jacks, Headphone Audio Out – 3.5mm **CONTROLS:** 8 Dedicated CV UI Buttons, 2 Quick Access Buttons **DIMENSIONS:** 28mm depth with power **EXTRAS:** Optional Enclosure (34hp with 12v PSU)

THE PROS & CONS

+

Huge potential in terms of sound design and creativity

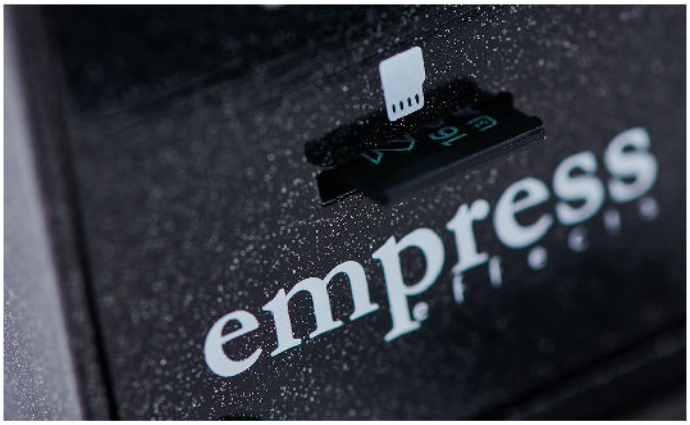
CV ins and outs offer plenty of potential for employing Zoia at the heart of a modular setup

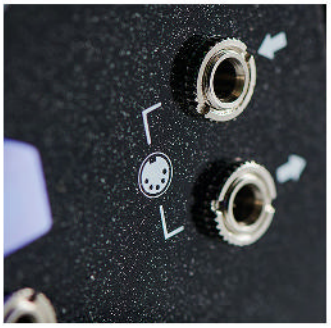
Some individual effects modules are as good as standalone units

–

Complex setups can be tricky to edit and adjust

Small screen can be hard to read at times unless you get very close





Coming from a guitar pedal maker, the distortion-style effects stand up pretty well

To all the guitarists out there Empress Effects probably need no introduction. Their range of guitar pedals – taking in both analogue and digitally derived processors – are highly regarded. However, they largely stick to relatively common ground, in terms of guitar processing at least. When Empress' button-laden Zoia pedal arrived a few years ago, it was therefore met with intrigue and interest. Zoia – a pedal employing DSP for the hard graft – was a processor and sound generator based on modular principles. It is still available in this format, but Empress have taken the natural step of repackaging its power in a 'real' modular format – Eurorack. However, they haven't completely left those users behind who have yet to take the leap into full-on modular madness, as Zoia can also be bought in desktop form, where the Eurorack module is built into a metal case with a suitable power supply input. This also allows them to open up the system to a wider range of users. Even in its original pedal form though it wasn't just an effects processor, but a reconfigurable modular system capable of sound generation, controllable via MIDI.

The most obvious differences between the pedal and the Euroburo version is the lack of heavy-duty pedal switches, and the addition of CV inputs and outputs, a dedicated headphone jack and the use of minijacks for all audio and control connectivity. It's worth noting that presets between the two units are interchangeable, with the caveat that elements that are not present in a particular unit will merely remain inactive or placed on a blank page.

The basic essence of creating patches on the Zoia is via the 5 x 8 button grid at the centre of the unit. A patch consists of one or more pages of modules connected together. Modules are represented by buttons on the grid, with each button in any given module representing a specific function. Modules can interact by making connections between them – in the way that one would connect patch cables in a module system. A good example mentioned in the manual is that of controlling a VCA (Voltage Controlled Amplifier) from an LFO (Low Frequency Oscillator) to create a Tremolo effect. In this case an audio module (VCA) has one of its parameters (Audio Level) modulated by a control module (LFO). Adding a module to a page's grid is as simple as pressing an empty button/grid slot and browsing through the onscreen module categories (see *The Modules*) using the metal parameter wheel. Clicking the wheel brings up a list of individual modules, where a further click allows you to configure its colour and basic features. Once added a

THE ALTERNATIVES

Empress Effects Zoia Pedal £489
If you don't need the modular integration then the slightly simpler pedal version might be a better choice
empresseffects.com

Expert Sleepers Disting Mk4 £169
A slimline multipurpose utility module with over 80 algorithms that can be selected and used one at a time
expert-sleepers.co.uk

Tiptop Audio Z-DSP £359
A cartridge-based sound processor with CV control. There's a limited number of parameters and algorithms on each cartridge, but some of them are very impressive
tiptopaudio.com

module fills a number of grid squares based on how many accessible parameters it has. These will wrap around existing modules if space is tight. Audio and control signals are routed between modules by holding one button (source) and pressing another (destination). Adjusting the parameter knob then determines the strength of the selected audio/control signal. Even if using only one page, things can get complex quickly, so important parameters and connections can helpfully be added to a 'Starred' list for quick access.

As is obvious, there is scope here for building some elaborate sound generators, sound processors and utility functions beloved by modular users. The downside to all this flexibility, and something common to any multipurpose box, is keeping a handle on what is going on, and how to make changes easily. The screen helps somewhat, but despite having a pretty high resolution it is very small, and doesn't fully solve the issue.

That being said, even in individual modules, there is a lot of power. For example, the Flanger module is (according to Empress) borrowed from their Nebulus pedal. So you could just set up some audio in and out connectors and patch a flanger in very quickly – and swap it for another effect very easily. The point here is that you don't have to get your hands that dirty to access some very strong effects, and coming from a guitar pedal maker you'll find that the distortion-style effects stand up pretty well despite being digital in origin.

KNOB AND SCREEN: for patch and module selection, parameter adjustment and anything you can't do with the buttons

CV INPUTS AND OUTPUTS: to interface the Zoia with your other modular gear

ACTION BUTTONS: Move, copy and delete modules and even randomly modify parameters or connections

THE MODULES

The module list is comprehensive, with modules falling into one of five categories: Interface, Analysis, Audio, CV and Effects.

Interface modules primarily deal with getting signals in and out of the Zoia, but also allow the buttons to act as controllers – even making it possible to turn the button matrix into a keyboard!

Audio modules include the usual array of synth-based sound generators and processors such as a mixer, oscillator and filters, but also pitchshifter, bit-crusher, looper, diffuser and others. The small Analysis category adds to this with onset and pitch detectors and an envelope follower.

The CV modules fall firmly in the modular universe, with classics such as an ADSR, LFO, Sample & Hold and Sequencer amongst its many other uses.

Finally, the Effects – almost worth the price of entry themselves – take in dynamic, modulation, delay and multiple reverb effects plus a cabinet simulator and distortion effects.

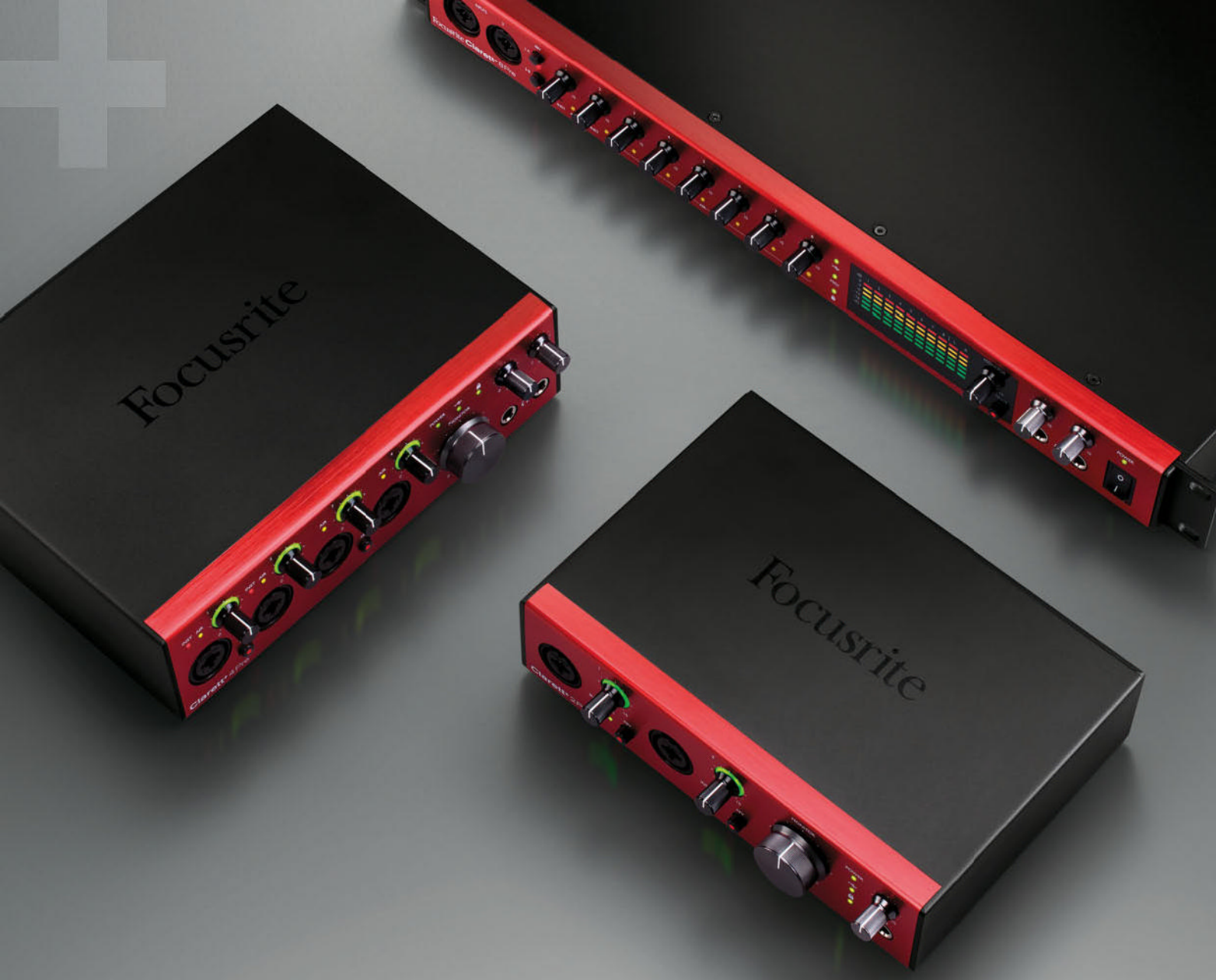
The advantage of all the processing being done digitally is that the system can be easily updated, and modules have been added at various stages during the firmware development process, with more than 80 available at the time of review. There is a lot of information about module specifics in an incredibly comprehensive spreadsheet curated by Empress.

Both in standalone and Eurorack formats this version of the Zoia offers a lot to a wide range of users both in the studio and on-stage. If you don't need the CV in/out features the original pedal version might be a better fit, and less money. However, for modular fanatics the Zoia Euroburo should be added to your must-try list if you are looking for a module that can take on multiple guises with ease, and allow you to use many of them at once. FM

FM VERDICT

8.9

A well thought-out unit capable of excellent results which makes creating your own sound generators and processors a speedy process



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A collection of software, including mixing plug-ins and virtual instruments, gives you the tools needed to master your craft.

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sE Electronics Neom USB £159

At last! A premium USB mic capable of professional results. **Simon Fellows** rejoices at sE's latest release

CONTACT **WHO:** sE Electronics **WEB:** seelectronics.com **KEY FEATURES** USB microphone with 2/3" back-electret condenser capsule and cardioid polar pattern **FREQ RANGE:** 20Hz-20kHz **BIT RESOLUTION:** ADC 24-bit/DAC 24-bit. Class compliant compatibility with MacOS, Windows, iOS and Android **WEIGHT:** 445g. Mic stand and USB-C to USB-A cable included

Okay, we get it, XLR is for geeky pros and USB is for consumers and hobbyists. Well, judging by its Neom USB mic, it seems sE Electronics didn't read the memo. True, there's a few things USB can't do, such as long cable runs, but for straightforward solo recordings it's so darned convenient. So much so, that up until now it's puzzled me why so few brands have developed a pro-level USB mic instead of all the flimsy gear we're used to seeing.

Bucking the trend, sE's Neom USB is a premium cardioid condenser mic that, as its name suggests, is USB only. Its true calling is voice applications – for podcasters, vloggers, creators – but there's no reason why it can't be employed for a host of other uses provided you don't need to run a cable longer than 5m.

Why is a USB mic potentially so cool? Well, the preamp and interface are built in, which means that if you're a podcaster on the move you don't need to buy, or drag around, a bag load of additional gear. The Neom USB is particularly convenient because it's class compliant, making it plug and play with everything from desktop PCs to smartphones. In short, this means that you can hook it up to your PC in your home studio, but when out on location you just need to pack it with your smartphone.

This mic is a solid beast. The all metal construction looks and feels like it'll last eons (well, longer than the USB standard anyway) and though both chunky and weighty, it's not too large or heavy to stick into a small bag. It's a relatively tall mic, which is a good thing. Mount it on the included mic stand and, at typical table-top height, the front address capsule will be directly in front of your mouth. Just where you want it.

The front of the mic features a mute button plus three rotary encoders for gain, mic level and playback level. sE's product designers have playfully incorporated the company's logo into the mute button, and marked the gain dial in increments up to 11. Nice touches.

The mute button flashes red when muted and illuminates white when recording, while the gain knob is surrounded by an LED ring that'll display green for a decent level and red when clipping. The mic level and playback level work in conjunction as monitor controls, letting you manage how much of the mic's signal vs how much of your PC's playback you hear through your headphones. A single headphone socket is on the back.

The Neom USB has a custom-designed capsule that features a decent-sized 2/3" diaphragm and will record up to 24-bit/192kHz resolution. Its frequency range is plenty wide enough at 20Hz-20kHz and its frequency response is flat other than a slight boost from 70Hz to 200Hz and a more pronounced boost at the top end from 5kHz to 15kHz. There's oodles of gain on tap – the 11 mark is justified!

It sounds very flattering. The top boost is of little consequence to voice recordings, but the combination of that low end boost and the sizeable diaphragm is probably responsible for the warm, rich tones that characterised our tests. If you like your voice to sound full but with zero muddiness (who doesn't?) then this is the mic for you. One caveat though – get too close and the proximity effect is very prominent. The clarity is still there, but the results are very dark.

I don't believe the proximity issue is a flaw worth worrying about. After all, those using this mic with a boom arm are likely to know what they're doing, while any amateurs using the included tabletop stand will be far enough away anyway. **FM**

FM VERDICT

9.0

What a joy it is to use a USB microphone that performs every bit as well as many XLR mics in this price range. A game changer

THE PROS & CONS

+

It's simplicity itself to use, just plug and play with MacOS, iOS, Android or Windows

Premium quality capsule and robust all-metal construction

Performance easily rivals professional competition in this price range

–

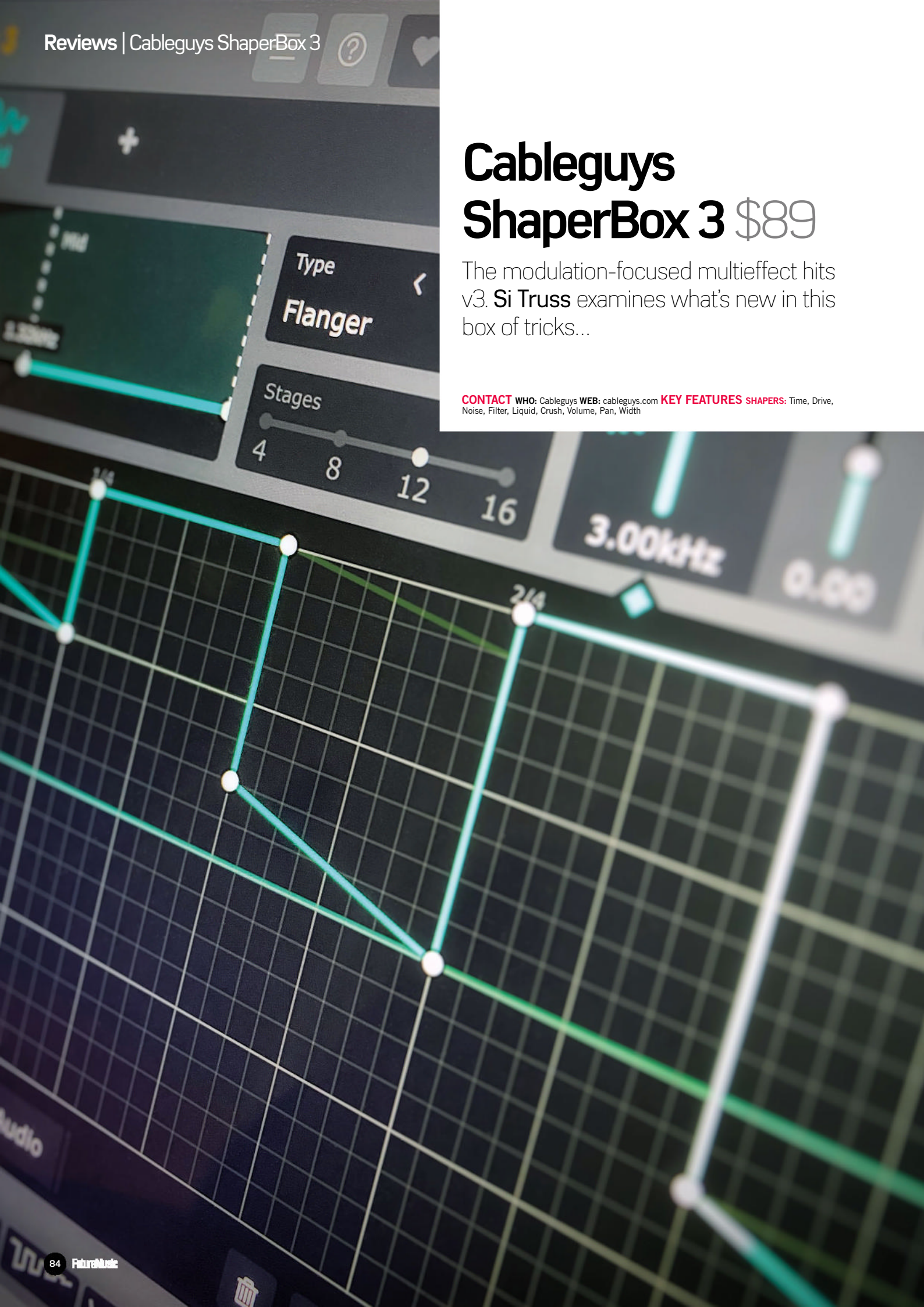
Marked proximity effect

Future obsolescence? Nobody knows how long the current USB standard will last

Cableguys ShaperBox 3 $89

The modulation-focused multieffect hits v3. **Si Truss** examines what's new in this box of tricks...

CONTACT **WHO:** Cableguys **WEB:** cableguys.com **KEY FEATURES** **SHAPERS:** Time, Drive, Noise, Filter, Liquid, Crush, Volume, Pan, Width



THE PROS & CONS

+

Phase and flange suit the ShaperBox workflow brilliantly

Improved browser makes finding inspiration easier

Improved sidechaining capabilities

–

Not much revolutionary compared to v2

Despite evolving considerably since version 1 appeared, Cableguys' ShaperBox remains rooted in a simple core concept. This is a multieffect plugin that allows users to 'draw' in the application of effects based on a highly customisable LFO curve. Essentially you choose an effect, and then either select or create a modulation curve that controls the depth of that effect. There's a lot more it can do beyond that – customisable multiband throughout, a massive user-stocked preset library, a multitude of triggering and curve-switching tools – but Cableguys have smartly kept that core workflow intact. As a result, it remains one of the best go-to tools for rapidly adding rhythmic interest to any sound.

Version 3 sticks with this formula, adding new effects and some handy new tools without upending the existing workflow.

On the effect front, ShaperBox 3 adds a new LiquidShaper module, which specialises in phasing and flanging. These are a very natural fit with the ShaperBox ethos, seeing as phasers and flangers have long been tried and tested tools for adding movement and width for guitarists, synthesists and studio engineers alike. Compared to some of the other Shapers, Liquid is relatively simple, with just two effect types. There are several parameters for adjusting the tonality and width of each though. What's more, users can apply individual shaper curves to the centre frequency and feedback rate for each. ShaperBox's customisable curves come into their own here, allowing for fantastic sweeps, rhythmic patterns and glitchy stutters, all of which sound especially good on synths and drums.

Aside from this new effect, ShaperBox 3 also adds a handful of new features across the board. The most notable of these is improved sidechain triggering. This involves the addition of a new Global Audio Trigger panel that lives along the top of the interface. Here users can switch the audio trigger mode between the main audio input and a sidechain input, monitor the incoming audio, apply high/low-pass filters and alter the detection algorithm to suit different types of material. ShaperBox can also be set to output a MIDI trigger based on the incoming audio, allowing it to trigger other plugins and devices.

The plugin also adds a new external sidechain view, whereby the central shaper view can be used to simultaneously visualise both the incoming audio and a sidechain input – handy when shaping an effect around the balance of two elements.

The curve drawing tools have also had a slight rework, making it quicker and easier to draw and edit modulation shapes, but in a way that won't feel too unfamiliar for long-time users. Finally, ShaperBox 3 has also given the browser a bit of an upgrade, with presets now better organised by the type of effect produced, which makes finding inspiration noticeably quicker.

On the whole, it's an upgrade that doesn't fundamentally upend the existing design, but ShaperBox didn't need that. The minor tweaks add up to an overall easier and more capable workflow, and LiquidShaper is an excellent addition. Upgrade prices are fairly reasonable too. **FM**

FM VERDICT

9.0

Version 3 isn't a huge reinvention, but ShaperBox was already a great go-to tool, and it's now slicker and more capable than ever

Austrian Audio Hi-X25BT £149

Charlotte Sterland connects up with Austrian Audio's latest Bluetooth cans

CONTACT **WHO:** Austrian Audio **WEB:** austrian.audio **KEY FEATURES** Foldable Bluetooth 5.0 over-ear headphones with memory foam earpads and a 30 hour battery life **FREQUENCY RANGE:** 12Hz – 24kHz **SENSITIVITY:** 113 dBsl/V **DIMENSIONS:** 205 x 170 x 80mm **WEIGHT (WITHOUT CABLE):** 270g **BATTERY TYPE:** Built-in Lithium Polymer

THE PROS & CONS

+

Great sound quality at all frequencies

Good for all instruments and genres

Nice quality to playback

Stay on well

–

Could have even longer battery life for use travelling

Built in a sleek red and black design, these headphones are nice to wear and give a great sound with vocals, instrumentals and electronic tracks as well as classical recordings. Placing the bass well and giving mids a good sound, they are not overly loud, but give the whole sound spectrum a pleasing quality.

As with other wireless headphones, such as Sennheiser's, the listening experience is different to the wired one; but the freedom to move while using is really useful.

One press of the power button turns the headphones on, while three presses pairs them via Bluetooth. The phones charge digitally via the input on the right can. Meanwhile, one tap on the right ear phone mutes the phones, and another turns them back on. One tap also serves the function of 'receiving a call' while two serves as rejecting one.

Volume slider controls are accessed via the same earphone. One upwards slide takes the volume up by one bar, while one slide down takes it down a bar. Multiple slides takes the volume way up or down. There is sensitivity based on the size of the slide, so one long slide up takes the volume way louder and one long slide down takes the volume right down.

Functions are fairly easy to control and to get used to. Some headphones take ages to pair and can be a nightmare to control, but these are easy and responsive, as well as having not too many buttons to make remembering where to press a little tricky.

With no mini jack audio into the phones, the headphones can only be used wirelessly, or via USB, which forces the user to get to know the Bluetooth functions quickly. Most studios are set up for Bluetooth headphones, but if there were a problem connecting, it could be annoying not having a mini jack input. That said, USB works fine for most professional applications; it's easy to connect to a computer audio, just less easy to connect to a hi-fi or other media playback device which does not have Bluetooth or USB. These do come with a 3.5mm jack to lightning cable connector for studio monitoring or live sound checking however.

Held away from the head by the larger ear muffs, there is a feeling of space in the headphones, with the mix also sounding like it's in a more spacious room as a result.

With a sensitivity of 113dB SPL/V, the headphones represent the clarity of a mix well yet are not overly loud: they need a decent volume to play loudly.

With a maximum running time of 30 hours, a weight of only 270g, and a strong but light design, these headphones are a strong purchase choice. They stay on very well, even when moving around the room and at a good price for such high quality, these are a strong competitor with any of the major headphones brands. **FM**

FM VERDICT

8.5

If you're happy to use Bluetooth or USB, these are quality all-rounder headphones that can suit a variety of uses

Bitwig Studio 4.4

$399

Can Bitwig's Spectral Suite overcome the controversy of its launch? **Si Truss** finds out

CONTACT **WHO:** Bitwig **WEB:** bitwig.com **KEY FEATURES** Multitrack DAW. Version 4.4 includes four new spectral effect containers. Included as a free update for all users with an active upgrade plan

THE PROS & CONS

+

An excellent creative take on spectral processing

Included presets show off new devices well

Works excellently with Bitwig's modulators

–

Launch rollout potentially lost Bitwig some goodwill

Bitwig Spectral Suite launched in October to some controversy. Bitwig sell their DAW on an 'upgrade plan' model: rather than purchase a specific version, users buy an annual plan that entitles them to the latest iteration plus 12 months of updates. This latest suite, however, was initially introduced as the DAW's first paid add-on. This caused some understandable consternation: it's a bit rich to sell someone a plan supposedly including a full year of updates, then try to charge them for new first-party features. Fortunately Bitwig rapidly reversed course following user outcry, and within a week reintroduced Spectral Suite as a free update, now rebranded Bitwig Studio 4.4. It's a shame this rollout has overshadowed the update itself, as the four devices are very impressive.

These are all based around the principle of spectral processing – breaking incoming audio down into hundreds of frequency bands in order to process elements individually. It's not new or particularly uncommon technology, providing the basis for plugins from Sonible, Focusrite, iZotope and Ableton's Spectral Effects. Bitwig's applications each offer a unique take though, designed to work as part of the DAW's unique approach to effects and modulation.

Each device is an audio effect container, splitting incoming audio and then hosting devices or plugins to process separate elements. Frequency Split is the most straightforward, dividing the output into four colour-coded frequency bands. However, the distribution and spread of these is far more flexible than simply high/mid/low multiband splitting, with the ability to split the frequency range up-to 1,024 times and adjust the distribution through Split Direction, Spin, Nudge and Crossfade controls.

> It allows for some brilliantly unusual melodic effects

Transient Split divides incoming audio into Transient and Tonal elements, with a variety of tools to control the timing and distribution. It makes a wonderful tool for processing drums and loops, for applications such as applying distortion to the body of a drum groove without destroying the transients, or delay to just the percussive tones in a loop.

Loud Split divides audio into Loud, Quiet and Mid bands. This is handy for mixing and mastering applications, such as boosting quiet elements of a recording or taming just the loudest parts, but it also has a lot of fun creative uses, such as applying overt reverb or delay to just the noisiest moments of a track.

Finally, Harmonic Split is possibly the most interesting. This tracks the audio's fundamental frequency, then breaks the output into two groups or harmonic divisions – eg, fundamental and harmonics, or odd and even harmonics – plus a third non-harmonic band. This allows for some brilliantly unusual melodic effects. An included bundle of presets from Bitwig shows off this, and the other devices, very well.

All of these tools are best when paired with Bitwig's flexible modulators – and the nesting effects system – to create wild, ever-changing creative effects. If we can overlook the initial misstep on their launch, these are powerful, fun tools that (now they're included) make Bitwig Studio even more appealing. **FM**

FM VERDICT

8.5

Bitwig's take on spectral processing is typically creative and works very well with the DAW's overall ethos

Eventide Physion MkII

Physion MkII is the second iteration of Eventide's powerful multi-effect, which is capable of the same signal-splitting process as its predecessor, but with new features thrown in for good measure. The plugin's key selling point is its ability to split a signal into transient and tonal information, and apply effects to these parts independently.

There are seven effects to choose from in the transient section, and eight in the tonal section, giving you a diverse range of configurations for all manner of creative tasks. Here we'll explore some of Physion MkII's features and capabilities. You can buy the plugin for £88.99 (sale price) from Eventide's website, or download the free demo.

Structural split

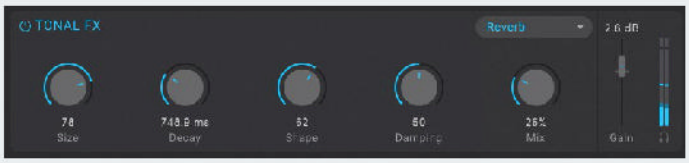
Let's start by listening to how Physion MkII divides a signal. Click the power button at the top left of the Transient FX section to turn it off, then solo the transient information by clicking on the headphone icon on the far right. You can use Focus in the Structural Split section to manually adjust how much of the signal is portioned into Transient or Tonal. Click on the Source dropdown menu to select an appropriate detection algorithm for the type of audio you're processing. The Smoothing and Transient Decay dials let you fine-tune the signal detection.

Transient delay

We'll use Physion MkII to apply a delay to a piano's transient. Ensure Transient FX is turned on and that Delay is selected. You can set the beat divisions to be in sync with your project, a BPM or not at all. Time sets a beat division or millisecond, Feedback controls how much effect is fed back into itself, then you can balance the audio using the Low and High Cut knobs. Warp creates glitchy pitchbending effects when you adjust the delay time.

Tonal reverb

We can now apply reverb to just the tonal portion of the signal, as extremely transient information can mean unpleasant-sounding reverbs with undesirable artefacts. Physion's reverb gives you Size, Decay and Shape controls, plus Damping, which dampens high frequency content. A mix control lets you fine-tune outputted signal. There's a global mix control for taming the plugin's overall effect, plus Transient, Tonal and global gain controls.



Reverse delay

Both the Transient and Tonal FX section contain a Reverse Delay effect for unique swelling sounds. This effect's Envelope Retrigger lets you adjust the threshold to set the point at which the reverse delay's gate is opened and the delay is triggered. Pitch lets you adjust the pitch of the delayed signal by up to two octaves up or down, and Feedback lets you feed the effect back into itself. With Crystals mode off, only the delayed sound is fed back. With Crystals mode on, the pitchshifting effect is also fed back, creating ascending or descending pitched effects.

STRUCTURAL EFFECTS

Eventide describes Physion as a "structural effects" plugin because of its ability to split an audio signal into its transient and tonal portions. Using the company's 'Structural Split' technology, sounds' transients and tones are processed separately. This makes sense, as the two portions have very different properties and can be treated differently to devasting effect. Imagine taking a kick drum's click and applying, say, pitchshifting and distortion, while applying EQ and delay to the tonal 'body' portion. Since these effects shouldn't interfere with each other, you can get tailored processing where it counts the most in any sound. Let's explore this more…

< Gate+EQ

The Transient FX section contains a Gate+EQ effect which lets you adjust the shape and tone of your transient. The Threshold dial sets the level at which the signal is allowed to pass through the gate. The EQ contains Low, Mid and High frequency gain controls, with an adjustable Mid frequency band which in turn sets the parameters of the Low and High frequency bands. The Tonal FX section contains an EQ effect, which adds a Q value control to the Mid frequency band for greater control.

Tap delay >

Physion MkII's Tap Delay differs from the standard delay in that it is only available in the Transient FX section, and you can set up to 32 delay repeats or taps. The Taper control lets you add an amplitude fade to the delayed signal. Negative values cause the amplitude to increase over time, while positive values cause the amplitude to decrease. You can also adjust the tap spacing using spread. Lower values group taps towards the start of the tail, and higher values group taps towards the end.

< Global controls

There are six categories of presets to choose from if you're looking for some inspiration. To select a preset, click on the preset name at the top of the interface then select a preset from the dropdown list. You can also cycle through presets using the left and right arrows. There is A/B functionality so that you can quickly switch between and compare configurations. The bypass button at the bottom right-hand side of the interface lets you turn the plugin off so that you can easily hear the effect it's having on your signal. FM

Luftrum – Vangelis for Omnisphere 2 $39

To any synth aficionado Vangelis, needs no introduction. Famed for his film and TV soundtrack work, his sound palette and approach is immediately recognisable. Two elements in particular that come through strongly are his use of expansive reverb alongside the regular use of sounds created on his beloved Yamaha CS-80. The reverb halo that surrounds many of his most famous soundtracks (such as *Chariots Of Fire* and *Blade Runner*) was created with the then relatively new Lexicon 224 digital reverb unit. The new technology available in units like this allowed users to create huge sonic spaces at the flick of a switch. This, combined with the expressive power of Yamaha's top-flight analogue behemoth, allowed Vangelis to create music that embraced synthesis in a very organic way – and it was usually performed live (without sequencers).

This lengthy preamble brings us to Luftrum Sound Design's Vangelis for Omnisphere 2, which will clearly stand or fall based on whether it can capture some of the aforementioned magic. The short answer is a resounding yes. This tribute soundset of 115 presets (90 patches and 25 multis) targets specific pieces from the Vangelis catalogue for its sonic reference points – and with some accurate and astute programming – but also contains patches that allude to (rather than directly copy) the broader Vangelis vibe.

One question that packs like this bring up is whether they are solely for those fan boys/girls who simply want to create soundalike material. Although a lot of fun, these patches are also extremely playable in their own right, and could be used across a host of styles. ***Bruce Aisher***

luftrum.com

VERDICT 9.0

Spitfire Audio – RESONATE £199

Let's get this out of the way – this isn't just another orchestral percussion library offering variations on a well-worn theme but just bigger and apparently better. Instead, this new collection from Spitfire Audio claims to take a new approach by exploring some of the less obvious modes of percussion-based sound creation with world-renowned percussionist Dame Evelyn Glennie. So, whilst this doesn't entirely do away with single percussion hits, it does embrace unusual mic techniques and combines these with a playing style which emphasises the instruments' resonant qualities (as opposed to transient bombast) – hence the name.

As with many recent Spitfire releases, this collection employs their own plugin as its front end, and the functionality will be familiar to even those who haven't bought one of their premium products as it is also used as the basis for their free Spitfire Labs instruments.

Here the plugin functions in one of two modes – Standard and Grid. The former presents the instruments in conventionally playable groups and with options for adjusting the many mic and mix levels captured here. Grid mode allows you to map different instruments to each key for complex playable hits and beds. Further depth is added with the inclusion of 'warped' (processed) variants and the ability to stretch samples.

This is a fine collection, and whilst certainly not something for the essentials list, would find plenty of use with media composers or anyone looking to add some beautifully recorded and unusual textures to their sonic palette.

Bruce Aisher

spitfireaudio.com

VERDICT 8.5

Audiotent – Nitrate from £45

Amazing set of 107 expertly-crafted presets for Knifonium – Knif Audio's whopper monophonic vacuum tube-powered synth. They've rolled up their sleeves and got elbows deep in the guts of this one, pulling out monster basses, fierce top lines, and a whole host of other meaty keys, pads, tones and timbres.

Everything you hear is warm to the ear, and each big, bold, bouncy and beautiful sound will have you grinning like a kid in some kind of store. There's also plenty of bite to this collection, with some savage saturation and distortion textures to choose from. But, you'll need the Knifonium plugin to enjoy these presets. And, if you have the extra coin, you'll wanna upgrade to the Deluxe kit for MIDI and WAV files. *Roy Spencer*

audiotent.com

VERDICT 9.0

Loopmasters – Terraform Drum & Bass £29.95

Break new ground on this bountiful batch of DnB building blocks. The smart-as-a-whip selections nod respectfully to pioneers of the breakbeat science and sage sound designers like Photek and Amon Tobin. And everything in this near 500MB pack will work out your body and mind, as you chop and layer these cerebral club grooves into your own signature shapes.

The atmospheric hits, liquid loops, and sick sampler patches work best running between more trad jungalistic tempos of 160bpm to 174bpm. But, the more daring dudes among you can ignore that advice, and stretch and slice these durable sounds into more downtempo and trip-hoppy territories, if required – it's your world. Make it a place you want to live in. *Roy Spencer*

loopmasters.com

VERDICT 8.0

Loopmasters – Lovers Rock & Dub 2 £29.95

Another fantastic collection of classic Caribbean content, rooted firmly in the sizzling sub-genre of reggae known as lovers rock.

Fans of this series will know what to expect, as you get all the Studio One-quality loops and hits needed to evoke this nostalgic flavour, in another well-stocked sample pack.

Once inside, you'll be greeted with some serious deep bass business and steady rocking drum work. Which joins forces with a whole gang of skanking guitar playing, keys, brass, and dub-primed percussion grooves. The tempos build from 85-130bpm. And these sounds hold the fort firmly in their intended style, but will work a treat woven into more future-forward flexes, like reggaeton or more upfront digital dancehall. *Roy Spencer*

loopmasters.com

VERDICT 7.0

Montage by Splice – Cinematic Vocals From $7.99/month

Ghostly warbles, dreamy harmonies, and airy high notes fly skywards in this cracking collection of stacked and singular vocal performances. Beautiful paddy textures swing and soar. With moods ranging from sad to joyous caught in the booth. It's a perfect pack for gracing your soundtrack work, classy EDM tracks, or anything else needing a high-end choir crew's golden tones adding to it.

The 102 loops and 90 one-shots of expressive human voice in this set have been precisely and crisply recorded, and come in dry or wet versions. Offering up a supremely useful library of emotionally-charged and cinematically-minded male and female melodies, drones, notes, and chorus swells. Just waiting to be added to the next dramatic score or beat you're working on. *Roy Spencer*

splice.com

VERDICT 8.0

Sample Magic – Fundamental IDM From $7.99/month

Flashback pack of ambient electronica, inspired by the golden era of 2000's melodic majesty.

The housey beats and techno treats here come on strong, via 200+ loops and 150 one-shots, with presets, music kits, MIDI, and stemmed tracks backing them up. Tonally deep and dusty, with woozy/moody grooves to the fore. Pull up glitchier and grainer sounds, if you like a little more decay and distress to your tracks. Or keep it less lucid, as you trawl through the drifty and dreamier side of these stylish selections.

These kinds of abstract and experimental sounds will never really go out of fashion. And these tasteful takes on the decades' old trends provide a treasure trove of nostalgic textures to wallow in, once more. *Roy Spencer*

splice.com

VERDICT 7.0

HIGH-END ANALOGUE SYNTHS

Oberheim OB-X8
£4,799

Full Review: FM390 | This is a beautiful synth destined to be a classic in its own right, but there's no escaping the fact that it's also rather expensive.

UDO Super 6 £2,195

Full Review: FM367 The Super 6 is an impressive machine; even more so for being a first release. Intuitive, super-versatile, totally unique sounding… a pleasure to get lost in!

Arturia PolyBrute £2,299

Full Review: FM362 Arturia's first polysynth is packed with unique features and has bags of character. A worthy flagship for the Brute range and a top-tier poly.

Moog Matriarch £1,979

Review: FM355 The Matriarch is very inspiring. It's well built, has the classic Moog Modular sound and it's complex yet intuitive. This is a future classic!

Sequential Take 5 £1,229

Review: FM382 More than just a more affordable Prophet, Take 5 is its own, distinctive synth with a fantastic sound.

AFFORDABLE MONITORS

IK Multimedia iLoud Micro £250 (pair)

IK's compact monitors are small but offer powerful sound and surprising quality. Flexible connectivity and handy room correcting EQ make them a bargain.

M-Audio BX3 & BX4 from £85

Full Review: FM369 Compact and convenient, M-Audio's new BX monitors expand the appeal of the range and do so at an incredible price.

Adam Audio T5V £133

Full Review: FM335 The T5V delivers plenty of clarity, decent imaging and volume from a pretty compact footprint. A tidy package, all at a good price point.

KRK Rokit G4 from £133

Full Review: FM348 With punchy delivery and an abundance of EQ options, these are the best Rokits yet, offering power at an accessible price.

Kali Audio LP-6 £147

These two-way speakers from relative newcomers Kali Audio offer exceptional sound quality at a very reasonable price. An excellent option for home studios.

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HARDWARE SEQUENCERS

Korg SQ-64
£269

Full Review: FM367 | An intuitive, nostalgic and very musical bit of gear. Recently updated to v2.0, adding a new drum mode and more.

Arturia KeyStep Pro £319

Full Review: FM359 For melodic sequencing duties and flexible hardware control, this is one of the best keyboard devices around.

Novation SL MkIII from £540

Full Review: FM338 For those who work with both hard and software, this may be the best studio centrepiece on the market.

Pioneer DJ Toraiz Squid £467

Review: FM351 Features like Groove Bend and speed modulation put a new spin on your sequencing moves.

Arturia BeatStep Pro £196

Review: FM296 A modern classic, offering great connectivity, sequencing and controller capabilities, all without breaking the bank.

CREATIVE EFFECT PLUGINS

Cableguys ShaperBox 3 $89

With its focus on custom modulation, multiband nature and wealth of presets, ShaperBox is an essential go-to for adding movement and bringing sounds to life.

ValhallaDSP Valhalla Delay $50

Full Review: FM344 Combining a range of excellent-sounding delay modes with some great ambient tools, this is a must-have plugin at a great price.

Output Thermal £84

Full Review: FM360 A well-equipped and creative distortion effect that's capable of a wide range of musical, often inspiring results.

Soundtoys Effect Rack $299

A longtime favourite of many pro producers, Soundtoys' hardware-inspired multi-effect can do everything from faux analogue crunch to out-there FX inspiration.

Arturia Dist Coldfire €99

Described as a 'dual distortion reactor', Arturia's latest original effect is a powerful combination of virtual analogue and digital distortion.

MIDI KEYBOARDS

Novation Launchkey 88 Mk3 £200

Full Review: FM386

Launchkey 88 is a solid performer that makes a great standalone controller but is best coupled with one of the script-supported DAWs.

Arturia KeyStep Pro £339

Full Review: FM324

For melodic sequencing duties and flexible hardware control, this is one of the best keyboard devices around.

Akai MPK mini mk3 £90

Review FM363 A very decent upgrade with genuinely pro features, that cements its position in the top handful of mini keyboard controllers available.

NI Komplete Kontrol A-Series | from £119

Review FM338 A quality controller combined with a well-rounded software bundle.

Novation FLkey 37 £200

Review: FM383 There might be little in the way of competition when it comes to FL Studio controllers, but Novation's FLkey is a genuinely slick keyboard.

Novation Launchkey Mini Mk3 £110

Review: FM349 Small but well spec'd, this is a convenient and well-made controller that's great with or without Ableton Live.

Novation SL MkIII £540

Review: FM338 Well-designed and versatile. For those who work with both hardware and software, this may be the best studio centrepiece that's on the market.

NI Komplete Kontrol S-Series Mk2 £499

Review: FM324 Komplete Kontrol MkII brings a whole sonic universe under your fingertips like never before, with deeper DAW integration too.

NI Komplete Kontrol M32 £99

The M32 controller takes Native Instruments' Komplete Kontrol concept and places it into a properly portable, entry-level package with impressive results.

Nektar Impact LX88+ £249

Review: FM315 The LX88+ combines a pretty good keyboard with extensive DAW integration, and is about as good as you'll get at this price point.

DAWs

Bitwig Studio 4 $399

Full Review: FM390 (Bitwig 4.4)

Despite some controversy around the recent rollout of 4.4's 'Spectral Suite', Bitwig remains at the forefront of creative software.

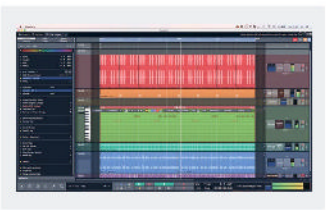
Steinberg Cubase 12 £497

Full Review: FM382

Version 12 is a solid and dependable update to Cubase, and offers some excellent new features and small, but important, update to others.

Ableton Live 11 Suite £539

Review: FM368 Not an essential upgrade for everyone, but new additions, including comping, MPE and linked tracks, have been smartly done. Live retains its place at the cutting edge.



Tracktion Waveform Pro from $119

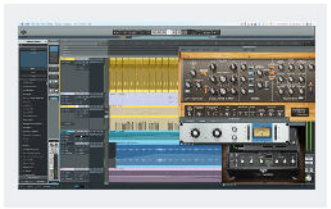
Review: FM345 Waveform is now friendlier, contains more creative tools and brings workflow ideas you'll have missed from other DAWs.

Apple Logic Pro $199

Review: FM361 Still no Logic 11, but seeing as Pro has had so many updates (it's recently dropped the 'X' too), it's hard to complain. In the latest, spatial audio tools join the party.

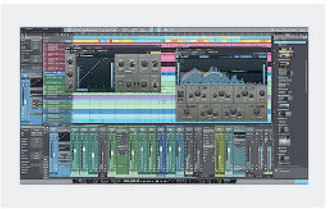
Reason Studios Reason 12 £499

Review: FM375 It's debateable whether the upgrade is worth it for existing Reason 11 users, but taken as a whole Reason is looking the best it has in years.



Universal Audio LUNA free

UA might not want to call LUNA a DAW, but let's be honest... Even in its version one form, this is a slick and stylish recording environment and a great freebie for Apollo users.

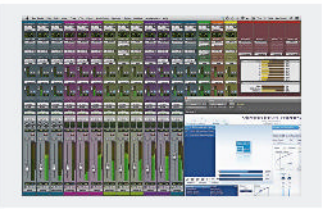


PreSonus Studio One Pro £345

Recently updated to version 6, Studio One now has a lot to offer those working with traditional notation and scoring for screen.

Image-Line FL Studio €89

Review: FM334 Over 20 years since it first appeared, Image-Line's FL Studio is a powerful and inspirational application – and it's a welcome addition to the Mac realm too!



Avid Pro Tools from £25 p/m

Pro Tools has now caught up with other DAWs, bringing in a fast workflow to match its power. It still only runs AAX plugins, and there are alternative subscription payment models.

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